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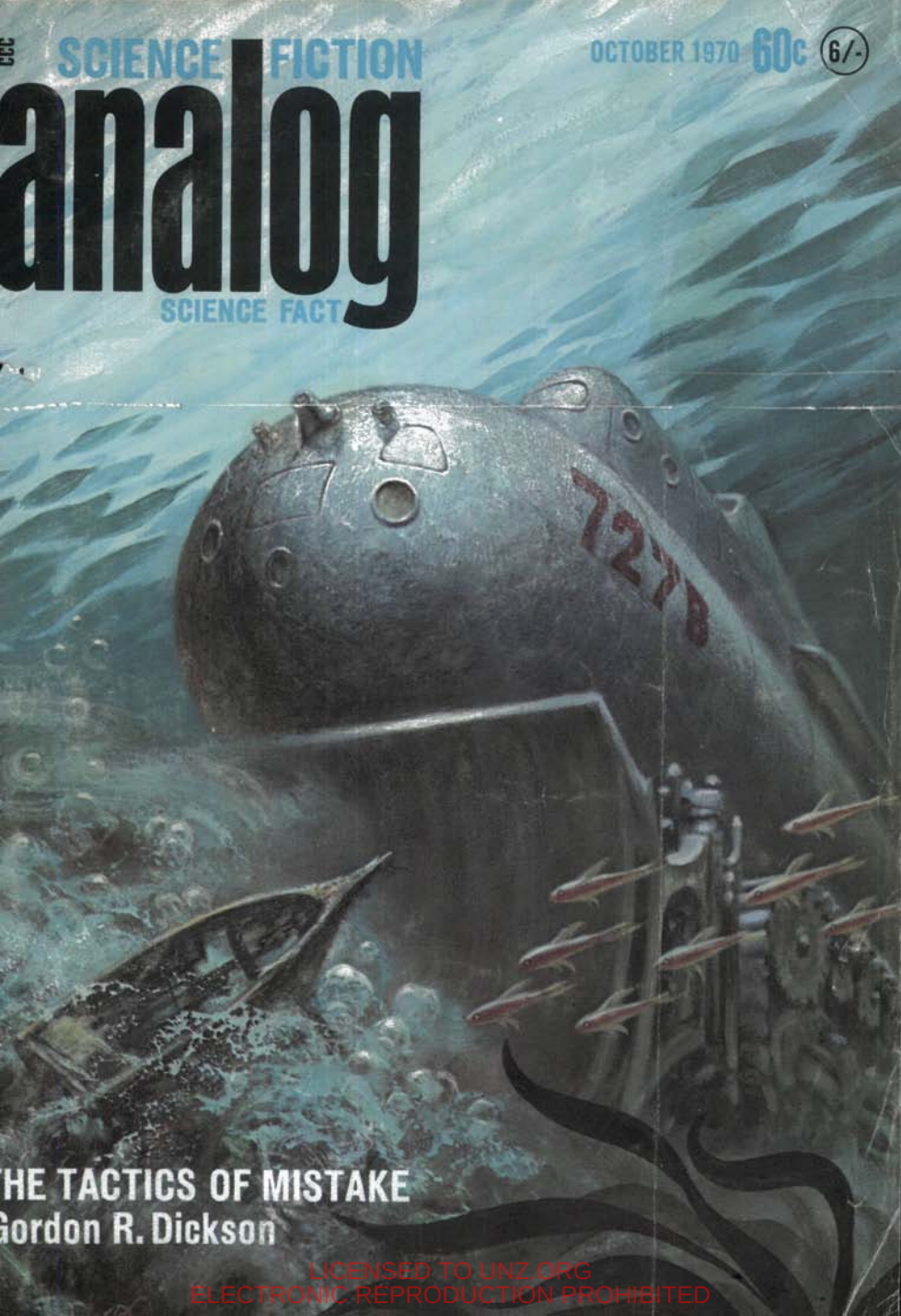

THE TACTICS OF MISTAKE
Gordon R. Dickson

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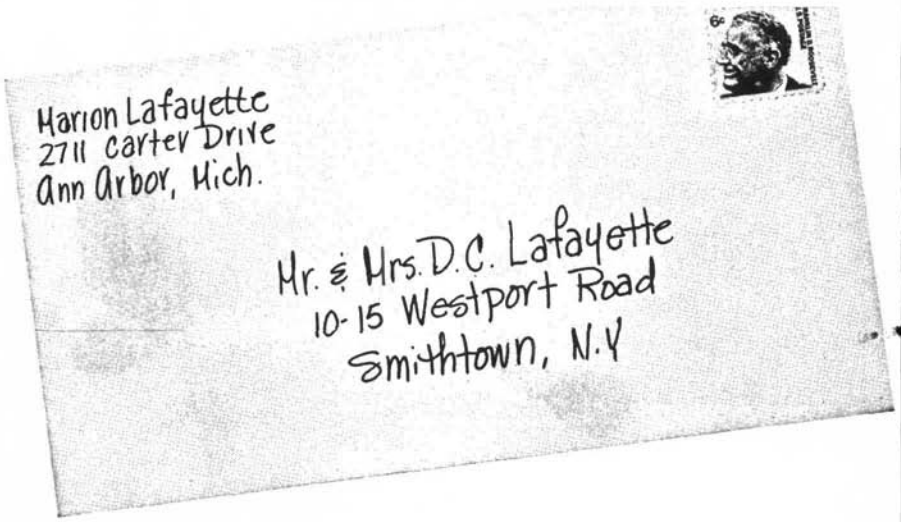

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THE DRUG SCENE

Editorial by John W. Campbell

Some years ago a friend of mine in an ironic mood said he had a solution to the problem of the Population Explosion that would, he was sure, bring a large and rapid decrease in the population, improve the average intelligence and judgment of the human race, and selectively eliminate obnoxious personalities. He proposed that the system be called "Freedom of Medicine," which should make it popularly acceptable as an idea.

Basically, the thing's very simple. Freedom of Religion means that every man is free to accept God in his own way, on his own terms, or to reject the concept entirely. No one is required to have a priest to help him commune with God. "Freedom of Medicine," under this idea, would simply mean that everyone had an equal freedom of direct access to the benefits of medicines, with no requirement that a specially ordained individual, only a licensed physician, could prescribe for him. That anyone should have every right to go to any drugstore and purchase any drug or medicine he wanted—and no more requirement of prescriptions for the more effective drugs.

This doesn't mean there would be no doctors—simply that no one would *have* to go to them to get medicines. Those who didn't feel sure enough of their own ability to diagnose and treat their illness would be able to consult an M.D.

Naturally, there would be plenty of "How To Diagnose And Treat Your Illness" type books, with discussions of what drugs were for what purposes.

My friend was quite sure that this system would cause a rapid decrease in the world's population by elimination of the arrogant-and-stupid and the families of such people. Individuals who knew perfectly well that a good dose of morphine would solve the problem of pain in the lower right abdomen without any high-falutin doctor cutting 'em open, too. The ones that figured that if a little strychnine tonic made 'em feel better and stronger, a lot would do even more for 'em.

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Arsenic, in moderate doses, tends to produce a real improvement in the complexion—gives a real peaches-and-cream effect, because it tends to clear the skin and to increase the red-cell count of the blood. It's been used that way for centuries. A large enough dose will end a teen-ager's problem of acne—because corpses have so few problems.

There was some question as to whether children were to have the free run of the drug supplies or not. After all, could a ten-year-old be expected to use hormone injections wisely—if he understood that testosterone injections would rapidly increase his muscular strength and endurance?

But there was the point that if no restrictions were imposed—full freedom of the drug supplies allowed—within a generation or so those who survived to reproduce would be, on the average, much more judicious, patient, and intelligent. They'd be characterized by a willingness to listen to the advice of others, even when the advice seemed contrary to their desires.

The kind that didn't accept advice from others would have been eliminated by their own choice. No one would have imposed any penalties on them—no one would have punished them for disobedience.

One of the fundamental problems in human affairs—or in Intelligent Entity affairs!—is that what one honestly judges to be true is what he sincerely believes is true. And because he must use his own judgment in evaluating his judgment—whatever he judges will inevitably seem to him to be wise.

The essence of maturing wisdom is a recognition of the inescapable fact of that circular system—that you can *not* trust your own judgment of the wisdom of your judgment!

You can get some indication of the effect of calling that fact to attention in an argument; it frequently proves quite upsetting—particularly to the somewhat rigid-minded individual. If he says, "Well I think that all *icks* are *awks*," it sometimes startles him badly if you reply, "Yes, I agree with you; that is what you think."

At another level the judgment-of-judgment effect can be demonstrated on a physiological basis. The problem was first recognized clearly when early aircraft pilots began flying planes that could claw their way up above 20,000 feet. Naturally those early planes weren't pressurized, and the early fliers weren't taking oxygen equipment either.

After a few pilots had killed—or very nearly killed—themselves by exercise of exceedingly bad judgment, the scientific staff went to work on the problem. And the problem turned out to be largely that you couldn't convince a pilot

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who was actually suffering from anoxia at 20,000 feet that his judgment was in any way impaired.

Judgment is the highest function of the mind; when anoxia sets in and the brain is unable to function at its peak, the first function to drop out is judgment, because it's the last evolved. Long after consciousness itself has been cut off by anoxia, the oldest, basic functions of the brain continue; the heart beats, the lungs continue to struggle for air, the metabolic controls continue to try to maintain body temperature. But judgment goes long before consciousness does.

Experiments with pilots under anoxia soon demonstrated that when anoxia started in, they began to feel that their mental abilities were sharper, keener, faster and surer than ever before. Difficult and complicated arithmetical problems they could solve in half the time it took them normally! Solving problems of relationships which would have caused them much head-scratching normally became sure and swift. They found their minds were working with a smooth precision and ease they hadn't previously achieved.

Not till they were given adequate oxygen again were they able to see that their arithmetical computations were totally hopeless, their problem-solutions insane, and their mental clarity idiotic drooling.

If you don't question your answers—if you don't *doubt yourself*—your answers will appear to be perfect. No matter that you've just written down 7 x 8 = 81. In the absence of cross-checking judgment you can breeze along with magnificent assurance and conviction. This makes it easy to solve complex arithmetical problems with great speed and assurance. And zero accuracy, of course.

But since judgment *is* missing, you cannot convince a man in that state that his answers are bad.

The children who survived that Freedom of Medicine idea would not do so by reason of good judgment in the usual sense—they'd survive by reason of accepting the fact that they could not trust their own judgment.

This would greatly improve the average personality of the human race; arrogance—pride without real basis—would be selectively eliminated from the gene pool. It would lead to a breed of men who had judgment and used it—but who could, also, always remember that their judgment could not judge their judgment. The arrogant would die young. And if a somewhat arrogant person managed to live long enough to reproduce, his arrogance would assure him he didn't need any doctor to take care of his sick kids, by God! If it didn't stop him in his own generation, it'd stop him in the next.

Now despite the fact that this

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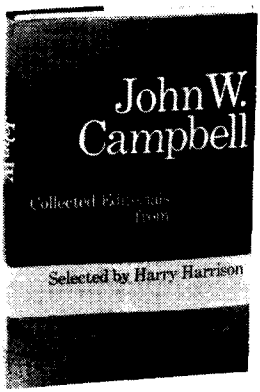

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Freedom of Medicine idea wouldn't impose any dangers on anyone—everyone would always be just as free as ever to turn to the doctors for advice—it's obvious that the current cultural philosophy would never allow it. It's a remarkably convoluted and inconsistent philosophy—you can call it hypocrisy if you wish—that holds that the people should be given absolute say as to what they want and what is good for them in a true democracy. But that the people must be protected by strong laws from doing what they want to do and deciding what's good for them, as they would under the Freedom of Medicine doctrine.

Because so many people are considered to be incapable of good judgment, we must have laws that keep them from exercising their free choice.

But the only proper source of decisions on what is needed *is these* same people.

Currently the sub-adult culture seems to be much in favor of the Freedom of Medicine approach; they're for having all the drugs anybody wants, and rejecting out of hand the advice of any more experienced older people. Since the drug culture is at work in the grammar schools, they're fairly rapidly applying the Freedom of

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THE TACTICS OF MISTAKE

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First of Four Parts.
In any contest, there are two basic routes to victory:
One is to outdo your enemy's best and wisest moves.
The other is to bait him into making mistakes. . .

GORDON R. DICKSON
Illustrated by Kelly Freas

"Trouble rather the tiger in his lair than the sage amongst his books. For to you Kingdoms and their armies are things mighty and enduring, but to him they are but toys of the moment, to be overturned by the flicking of a finger . . ."

Lessons: *Anonymous*

The young lieutenant colonel was drunk, apparently, and determined to rush upon disaster.

He came limping into the spaceship's dining lounge the first night out from Denver on the flight to Kultis, a row of bright service ribbons on the jacket of his green dress uniform, and looked around. He was a tall, lean officer, youthful to hold the rank he wore in the Expeditionary Forces of Earth's Western Alliance; and at first glance his open-featured face looked cheerful to the point of harmlessness.

He gazed around the room for a few seconds, while the steward tried unsuccessfully to steer him off to a booth nearby, set for a single diner. Then, ignoring the steward, he turned and headed directly for the table of Dow deCastries.

The white-faced, waspish little man called Pater Ten, who was always at deCastries's elbow, slipped away from his chair as the officer approached, and went toward the steward, still staring blank-faced with dismay after the lieutenant colonel. As Pater Ten approached, the steward frowned and bent forward to talk. The two of them spoke for a moment in low voices, glancing back at the lieutenant colonel, and then went quickly out of the lounge together.

The lieutenant colonel reached the table, pulled up an empty float seat from the adjoining table without waiting for an invitation, and seated himself across from the

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tawny-haired, beautiful young girl at deCastries's left.

"Privilege of first night out, they tell me," he said pleasantly to all of them at the table. "We sit where we like at dinner and meet our fellow passengers. How do you do?"

For a second no one spoke. DeCastries only smiled, the thin edge of a smile that barely curved the lips in his handsome face, framed by the touches of gray in the black hair at his temples. For five years, now, Secretary of Outworlds Affairs for Earth's Coalition of Eastern Nations, he was known for success with women; and his dark eyes had concentrated on the tawny-haired girl ever since he had invited her—with her mercenary soldier father and the Exotic Outbond who made up their party—to join his table, earlier. There was no obvious threat in that smile of his; but reflexively at the sight of it, the girl frowned slightly and put a hand on the arm of her father who had leaned forward to speak.

"Colonel—" The mercenary wore the pocket patch of an officer from the Dorsai World, under contract to the Bakhallan Exotics—he was a full colonel, himself. His darkly-tanned face with its stiffly-waxed moustache might have looked ridiculous, if it had not been as expressionlessly hard as the butt-plate of a cone rifle. He broke off; feeling his daughter's hand on his sleeve, he looked at her, but her attention was on the interloper.

"Colonel," she said to him in her turn—and her young voice sounded annoyed and concerned at once, after the flat, clipped tones of her father, "don't you think you ought to lie down for a while?"

"No," said the lieutenant colonel, looking at her. She caught her breath, finding herself seized, suddenly like a bird in the hand of a giant, by the strange and powerful attention of his gray eyes—entirely at odds with the harmless appearance he had given on entering the room. Those eyes held her momentarily helpless, so that without warning she was conscious of being at the exact focus of his vision, naked under the spotlight of his judgment. "I don't." She heard him say.

She sat back, shrugging her tanned shoulders above her green dinner gown, and managed to pull her gaze from its direct link with his. Out of the corner of her eye she saw him look about the table, from the blue-robed Exotic at its far end, back past her father and herself to the dark, faintly smiling deCastries.

"I know you, of course, Mr. Secretary," he went on to deCastries. "In fact, I picked this particular flight to Kultis just so I could meet you. I'm Cletus Grahame—head of the Tactics Department at the Western Alliance Military Academy until last month. Then I put in for transfer to Kultis. To Bakhalla, on Kultis."

He looked over at the Exotic.

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"The purser tells me you're Mondar, Outbond from Kultis to the Enclave in St. Louis," he said. "Bakhalla's your home town, then."

"The capital of Bakhalla Colony," said the Exotic, "not just a town, nowadays, Colonel. You know, I'm sure we're all pleased to meet you, Cletus. But do you think it's good judgment for an officer in the armed forces of the Alliance to try to mix with Coalition people?"

"Why not—on shipboard?" said Cletus Grahame, smiling unconcernedly at him. "You're mixing with the Secretary; and it's the Coalition who's supplying Neuland with arms and material. Besides, as I say, it's the first night out."

Mondar shook his head.

"Bakhalla and the Coalition aren't at war," he said. "The fact the Coalition's given some aid to Neuland Colony is beside the point."

"The Alliance and the Coalition aren't at war," said Cletus, "and the fact that they're backing different sides in the brush war between you and Neuland is beside the point."

"It's hardly beside the point—" began Mondar. But then he was interrupted.

There was a sudden hush in the buzz of conversation about the lounge. While they had been talking the steward and Pater Ten had returned, behind an impressively large, uniformed man wearing the stripes of a spaceliner's first officer, who now reached the table and dropped a big hand heavily on Cletus's shoulder.

"Colonel," said the shipman, loudly, "this is a Swiss ship of neutral registry. We carry Alliance and Coalition people, both, but we don't like political incidents on shipboard. This table belongs to the Coalition Secretary of Outworlds Affairs, Dow deCastries. Your place is back there across the room—"

But from the first word, Cletus paid him no attention. Instead, he looked back to the girl—at her alone—and smiled and raised his eyebrows as if leaving it up to her. He made no move to rise.

The girl glared back at him but still he did not move. For a long second her glare held; then it wavered and broke. She turned to deCastries.

"Dow—" she said, interrupting the ship's officer, who had begun to repeat his words.

DeCastries's thin smile widened slightly. He, too, raised his eyebrows, but with a different expression than Cletus. He let her gaze appealingly at him for a long second before he turned to the shipman.

"It's all right," he said, his deep, musical voice stilling the voice of the other, instantly. "The colonel's just making use of his first-night privileges to sit where he wants."

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The shipman's face reddened. His hand dropped slowly from Cletus's shoulder. Suddenly his size made him seem no longer large and impressive, but clumsy and conspicuous.

"Yes, Mr. Secretary," he said stiffly, "I see. Sorry to have bothered you all . . ."

He darted a glance of pure hatred at Pater Ten, which affected the little man no more than the shadow of a rain cloud affects the glowing radiance of a white-hot iron ingot; and, carefully avoiding the eyes of the other passengers, he turned and walked from the lounge. The steward had already evaporated, at deCastries's first words. Pater Ten slid into the seat he had vacated earlier.

"About the Exotic Enclave at St. Louis," Cletus said to Mondar—he did not seem to be disturbed by what had just happened—"they've been very good about lending me library materials for research."

"Oh?" Mondar's face was politely interested. "You're a writer, Colonel?"

"A scholar," said Cletus. His gray eyes fastened now on the Exotic. "I'm writing Volume Four right now, of a twenty-volume work I started three years ago—on Tactics and Strategical Considerations. But never mind that now. Can I meet the rest of the people here?"

Mondar nodded. "I'm Mondar, as you say.

"Colonel Eachan Khan," he said, turning to the Dorsai at his right, "may I introduce Lieutenant Colonel Cletus Grahame of the Alliance Forces?"

"Honored, Colonel," said Eachan Khan, in a clipped, old-fashioned British accent.

"Honored to meet you, sir," said Cletus.

". . . And Colonel Khan's daughter, Melissa Khan," went on Mondar.

"Hello," Cletus smiled again at her.

"How do you do?" she said, coldly.

"Our host, Secretary Dow deCastries, you've already recognized," Mondar said. "Mr. Secretary—Colonel Cletus Grahame."

"I'm afraid it's a little late to invite you to dinner, Colonel," said deCastries deeply. "The rest of us have eaten." He beckoned the steward. "We can offer you some wine."

". . . And, finally, the gentleman on the Secretary's right," said Mondar. "Mr. Pater Ten. Mr. Ten's got an eidetic memory, Colonel. You'll find he's got an encyclopedic fund of knowledge on just about everything."

"Pleased to meet you, Mr. Ten," said Cletus. "Maybe I ought to arrange to borrow you, instead of library materials, for my next research."

"Don't bother!" said Pater Ten,

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unexpectedly. He had a creaky, high-pitched, but surprisingly carrying, voice. "I looked at your first three volumes. Wild theories, backed up by warmed-over military history. They must've been going to kick you out of the Academy if you hadn't requested a transfer, first. Anyway, you're out. Now, who'll read you? You'll never finish a fourth book."

"I told you," said Mondar in the conversational pause that followed this small verbal explosion—Cletus was gazing at the small man with a faint smile not unlike that of deCastries, earlier—"Mr. Ten had an encyclopedic fund of knowledge."

"I see what you mean," said Cletus. "But knowledge and conclusions are two different things. That's why I'll be finishing all sixteen of the other volumes in spite of Mr. Ten's doubts. In fact that's why I'm headed for Kultis, now, to make sure I get them written."

"That's right—haul victory out of defeat there," creaked Pater Ten. "Win the war at Bakhalla in six weeks and become an Alliance hero."

"Yes, not such a bad idea," said Cletus, as the lounge steward deftly slid a clean wineglass in front of him and filled it from the bottle of canary-yellow liquid on the table. "Only it isn't either the Alliance, or the Coalition, that's going to win in the long run."

"That's a strong statement, Colonel," said deCastries. "Also, a little close to treason, isn't it—that part about the Alliance, spoken by an Alliance officer?"

"You think so?" Cletus said, and smiled. "Is someone here thinking of reporting me?"

"Possibly." There was abruptly a note of something chilling in deCastries's deep voice. "Meanwhile, it's interesting to hear you talk. What makes you think it won't be either the Alliance, or the Coalition, that'll end up having the strongest voice among the colonies on Kultis?"

"The laws of historical development," said Cletus, "are working to that end."

"Laws," said Melissa Khan, angrily. The tension she had been feeling beneath the calm talk had become too much to bear. "Why does everybody think"—she glanced a moment, almost bitterly at her father—"that there's some impractical set of principles, or theories, or codes, that everybody ought to live by? It's practical people who make things happen! You have to be practical, nowadays, or you might as well be dead."

"Melissa," said deCastries, smiling at her, "honors the practical man. I'm afraid I have to agree with her. Practical experience works."

"As opposed to theories, Colonel," flung in Pater Ten. "As opposed to bookish theories. Wait'll you get out among practical field officers in the Neuland-Bakhalla jungle in a practical fire-fight, and

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discover what war's really like! Wait'll you hear your first energy weapon sending its sizzle overhead; and you'll find out—"

"He's wearing the Alliance Medal of Honor, Mr. Ten."

The sudden, flat, clipped tones of Eachan Khan chopped across the small man's tirade like an ax. In the new silence Eachan pointed a steady, brown forefinger at the red, white and gold bar at the far right of the row of ribbons decorating Cletus's jacket.

II

The silence continued a moment, at the table.

"Colonel," said Eachan, "what's the trouble with your leg?"

Cletus grinned wryly.

"It's part prosthetic about the knee, now," he said. "Perfectly comfortable, but you can notice it when I walk." He looked back at Pater Ten. "Actually, Mr. Ten's pretty close to being right about my practical military experience. I only had three months of active duty after being commissioned, during the last Alliance-Coalition brush war on Earth seven years ago."

"But you ended up those three months with the Medal of Honor!" said Melissa. The expression with which she had watched him before had now changed completely. She swung about to Pater Ten. "I suppose that's one of the few things you don't know anything about?"

Pater Ten stared hatingly back at her.

"Do you, Pater?" murmured deCastries.

"There was a Lieutenant Grahame decorated seven years ago by the Alliance," spat out Pater Ten. "His division had made an attack drop and landing on a Pacific island held by our garrisons. The division was routed and cut up, but Lieutenant Grahame managed to put together a guerrilla force that was successful in bottling our people up in their strong fortified areas until Alliance reinforcements came, a month later. He ran into a traveling mine, the day before he would have been relieved. They stuck him in their Academy because he couldn't qualify physically for field duty, after that."

There was another, but shorter, moment of silence at the table.

"So," said deCastries, in an odly thoughtful tone, turning in his fingers the half filled wineglass on the tablecloth before him. "It seems the scholar was a hero, Colonel."

"No," said Cletus. "The lieutenant was a rash soldier, that's all. If I'd understood things then as well as I do now, I'd never have run into that mine."

"But here you are—headed back to where the fighting is!" said Melissa.

"That's true," said Cletus, "but as I said, I'm a wiser man now. I don't want any more medals."

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"What *do* you want, Cletus?" asked Mondar, from the end of the table. The Outbond had been watching Cletus with an un-Exotic-like intensity, for some few minutes now.

"He wants to write sixteen more volumes," sneered Pater Ten.

"As a matter of fact, Mr. Ten's right," said Cletus quietly to Mondar. "What I really want to do is finish my work on Tactics. Only, I've found out first I'm going to have to create the conditions they'll apply to."

"Win the war on Neuland in sixty days!" said Pater Ten. "Just as I said."

"Less time than that, I think," said Cletus; and gazed calmly about at the sudden changes of expression on the faces of all but Mondar and Pater Ten.

"You must believe in yourself as a military expert, Colonel," said deCastries. Like Mondar's, his gaze upon Cletus had grown interested.

"But I'm not an expert," said Cletus. "I'm a scholar. There's a difference. An expert's a man who knows a great deal about his subject. A scholar's someone who knows all there is that's available to be known, about it."

"It's still only theories," said Melissa. She looked at him puzzledly.

"Yes," he said to her. "But the effective theorist's got an advantage over the practician."

She shook her head, but said nothing—sinking back against the cushion of her seat, gazing at him with her lower lip caught between her teeth.

"I'm afraid I'd have to agree with Melissa again," said deCastries. For a moment his gaze was hooded as if he looked inward rather than outward at them. "I've seen too many men with nothing but theory get trampled on when they ventured out into the real world."

"Men are real," said Cletus. "So are weapons. But strategies? Political consequences? They're no more real than theories. And a sound theorist, used to dealing with unreal things, is a better manipulator of them than the man used to dealing only with the real tools that are actually only end products. Do you know anything about fencing?"

DeCastries shook his head.

"I do," said Eachan, briefly.

"Then maybe you'll recognize the tactic in fencing I use as an example for some I call the *Tactics of Mistake*. It's in the volume I'm writing now." Cletus turned to him. "The fencing tactic is to launch a series of attacks, each inviting ripostes, so that there's a pattern of engages and disengages of your blade with your opponent's. Your purpose, however, isn't to strike home with any of these preliminary attacks; but to carry your opponent's blade a little more out of line with each disengage so gradually he doesn't notice you're doing

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it. Then, following the final engage, when his blade has been drawn completely out of line, you thrust home against an essentially unguarded man."

"Take a damn good fencer," said Eachan, flatly.

"There's that, of course," said Cletus.

"Yes," said deCastries, slowly; and waited for Cletus to look back at him. "Also, it seems a tactic pretty well restricted to the fencing floor, where everything's done according to set rules."

"Oh, but it can be applied to almost any situation," said Cletus. There were coffee cups as yet unfilled, spaced about the table. He reached out and captured three of these and lined them up, upside down between himself and deCastries. Then he reached into a bowl of sugar cubes standing on the table and brought his fist back to drop a cube onto the tablecloth by the central cup.

He covered the sugar cube with the central cup and moved all the cups about, interchanging their positions rapidly. Then he stopped.

"You've heard of the old shell game," he said to deCastries. "Which one of those cups would you say the sugar cube's under?"

DeCastries looked at the cups but made no attempt to reach out to them.

"None of them," he said.

"Just for purposes of illustration—will you pick one, anyway?" DeCastries smiled good-naturedly.

"Why not?" he said.

He reached out and lifted the middle cup. His smile vanished for a second and then returned again. In plain view sat a sugar cube, white against white on the tablecloth.

"At least," said deCastries, "you're an honest shell-game operator."

Cletus took up the middle cup, which deCastries had set down and covered up the sugar cube. Once again, he rapidly switched around the positions of the overturned cups.

"Try it again?" he asked deCastries.

"If you want." This time deCastries chose to lift the cup at the right end of the row as it faced him. Another sugar cube was exposed.

"Once more?" said Cletus. Again he covered the cube and mixed the cups. DeCastries picked up the cup now in the center and put it down with some force when he saw the sugar cube he had exposed.

"What's this?" he said. His smile was definitely gone now. "What's the point of all this?"

"It seems you can't lose, Mr. Secretary, when I control the game," said Cletus.

DeCastries looked penetratingly at him for a second, then covered the cube and sat back, glancing at Pater Ten.

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"You move the cups this time, Pater," he said.

Smiling maliciously at Cletus, Pater Ten rose and switched the cups about—but so slowly that everyone at the table easily kept track of the cup deCastries had last handled. That particular cup ended up once more in the middle. DeCastries looked at Cletus and reached for the cup to the right of the one that plainly contained the cube. His hand hesitated, hovered over it for a moment, and then drew back. His smile returned.

"Of course," he said, looking at Cletus. "I don't know how you do it; but I do know that if I lift that cup there'll be a sugar cube under it." His hand moved to the cup at the opposite end of the line. "And if I choose this one, it'll probably be there?"

Cletus said nothing. He only smiled back.

DeCastries nodded. The customary easiness of his manner had returned to him.

"In fact," he said, "the only cup I can be sure doesn't have a sugar cube under it, is the one that we all know must have a cube—the one in the middle. Am I right?"

Cletus still only smiled.

"I am right," said deCastries. He extended his hand out over the central cup for a second, watching Cletus's eyes, then withdrew the hand. "And that was what you were after, in this demonstration with the cups and sugar cubes, wasn't it, Colonel? Your aim was to make me figure out the situation just the way I have—but also to make me so unsure of myself after being wrong three times in a row, that I'd still have to turn the center cup over to prove to myself it really was empty. Your real purpose was to strike at my confidence in my own judgment according to these *Tactics of Mistake* of yours, wasn't it?"

He reached out and snapped the central cup with his fingernail so that it rang with a sound like that of a small, flat-toned bell.

"But I'm not going to turn it over," he went on, looking at Cletus. "You see, having reasoned it out, I've gone one step further and worked out your purpose in trying to make me do it. You wanted to impress me. Well, I am impressed—but only a little. And in token of just how little, suppose we leave the cup sitting there, unturned? What do you say?"

"I say your reasoning's excellent, Mr. Secretary." Cletus reached out and gathered in the other two cups upside down covering the mouth of each briefly with his hand before turning them right-side up to expose their empty, open mouths to the lounge ceiling. "What else can I say?"

"Thank you, Colonel," said deCastries softly. He had leaned back in his chair and his eyes had narrowed down to slits. He reached out now with his right hand to take

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the stem of his wineglass and rotate it once more between thumb and forefinger with precise, quarter-turns as if screwing it delicately down into the white tablecloth. "Now, you said something earlier about taking this flight to Kultis only because you knew I'd be on it. Don't tell me you went to all that trouble just to show me your tactical shell game?"

"Only partly," said Cletus. The tension in the atmosphere around the table had suddenly increased, although the voices of both Cletus and deCastries remained pleasant and relaxed. "I wanted to meet you, Mr. Secretary, because I'm going to need you to arrange things so I can finish my work on Tactics."

"Oh?" said deCastries, "And just how did you expect me to help?"

"Opportunities ought to present themselves to both of us, Mr. Secretary"—Cletus pushed back his chair and stood up—"now that you've met me and know what I'm after. With that much done it's probably time for me to apologize for intruding on your dinner party and leave—"

"Just a moment, Colonel—" purred deCastries.

A small sound of breaking glass interrupted them. Melissa's wineglass lay spilled and shattered against a saucer, before her, and she was pushing herself unsteadily to her feet, one hand holding her forehead.

III

"No, no . . . it's all right!" she said to her father. "I'm just a little dizzy, suddenly, that's all. I'll go lie down. No, Dad, you stay here! Colonel Grahame, you can help me to my cabin, can't you—as long as you are leaving anyway?"

"Of course," said Cletus.

He came quickly around the table and she took hold of his arm. She was tall, and she leaned the not inconsiderable weight of her healthy young body heavily against him. Almost irritably, she waved her father and deCastries back into their seats.

"Really!" she said. Her voice sharpened. "I'm all right. I just want to lie down for a bit. Will you please not make a fuss about it? Colonel—"

"Right here," said Cletus. They moved off together slowly, she still leaning against him as they crossed the lounge and went out into the corridor turning left.

She continued to lean on him until they had made a turn in the corridor that hid them from the lounge entrance, then she stopped abruptly, straightened up, and pulled away turning to face him.

"I'm all right," she said. "I just had to do something to get you out of there. You aren't drunk at all!"

"No," said Cletus, good-humoredly. "And not a very good actor either, evidently."

"You couldn't have fooled me, if

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you were! I can feel—" She half-raised her hand, fingers spread out as if to touch him on the chest; and then dropped the hand abruptly as he looked curiously at it. "I can see right through people like you. Never mind that. It would have been bad enough if you *were* drunk. Trying to play games with a man like Dow deCastries!"

"I wasn't exactly playing games," said Cletus, soberly.

"Oh, don't tell me!" she said. "Don't you think I know what kind of idiots professional soldiers can make of themselves when they try to deal with people outside their own special military world? But a Medal of Honor means something to me, even if most civilians don't know what it is!" Her eyes had slipped into line with his again. She almost wrenched her gaze away. "And that's why I helped get you away from him just now. The only reason! And I'm not going to do it again!"

"I see," said Cletus.

"So you get back to your cabin now, and stay there! Stay away from Dow deCastries from now on. From Dad and me, too. Are you listening?"

"Of course," said Cletus. "But I'll see you the rest of the way to your cabin, at least."

"No, thanks. I can get there by myself."

"What if someone sees you doing just that and the word gets back to the Secretary that your dizziness cleared up this quickly, once you were out of the lounge?"

She glared at him, turned and stalked off down the corridor. Cletus caught up with her in two long strides and fell into step.

"About professional soldiers," he said, mildly. "One isn't just like another—"

She stopped and faced him abruptly, forcing him to stop also.

"I suppose," she said, grimly, "you think my father never was anything but a mercenary—"

"Of course not," Cletus said. "A lieutenant general in the Royal Army of Afghanistan, wasn't he, up until ten years or so ago?"

She stared at him.

"How did you know?" Her tone was accusing.

"Military history—even recent military history—is part of my field," he said. "The University Revolution at Kabul twelve years ago that ended up by taking over the government at Kabul, is part of it. The Afghanistani Army wouldn't have had more than one General Eachan Khan. He must have emigrated from Earth not more than a couple of years after the take-over."

"He didn't have to leave!" she said. "They still wanted him in the Army, even after Afghanistan gave up its independence to become a Sector Area of the Coalition. But there were other things—"

She broke off.

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"Other things?" asked Cletus.

"You wouldn't understand!" She turned and began walking once more down the corridor. But, after a few steps the words came from her as if she could not keep them in. "My mother had died . . . and . . . *Salaam Badshahi Daulat Afghanistan*—when they began enforcing the death penalty for anyone singing the old Afghanistani anthem, he resigned. So he emigrated—to the Dorsai."

"It's a New World full of soldiers there, I understand," said Cletus. "It shouldn't have been too—"

"They found work for him as a captain—a *captain* in a mercenary battalion!" she flashed at him. "And since then, in ten years, he's managed to work his way back up to colonel. And there he'll stay. Because the Dorsai mercenaries can't find employment for anything larger than a short regiment—and after his expenses are paid we don't have enough left over from what he makes to visit Earth, let alone live there again; unless the Exotics, or someone, pay our way there on official business."

Cletus nodded.

"I see," he said. "But it's a mistake for you to try to mend things through deCastries. He's not capable of being influenced the way you hope."

"Mend things—" She turned her head and stared at him, meeting his eyes this time in unthinking shock, her face suddenly quite pale.

"Of course," said Cletus. "I'd been wondering what you were doing at his table. You'd have been underage at the time your father emigrated to the Dorsai; so you must have dual Coalition-Dorsai citizenship. You have the right to go back and live on Earth any time you want to take up your Coalition citizenship. But your father can't be repatriated except by special political dispensation, which is almost impossible to get. Either you, or he, must think you can get deCastries to help you with that—"

"Dad's got nothing to do with it!" Her voice was fierce. "What kind of a man do you think he is?"

He looked at her.

"No. You're right, of course," he said. "It must have been your idea. He's not the type. I grew up in a military family back on Earth, myself, and he reminds me of some of the generals I'm related to. In fact, if I hadn't wanted to be a painter—"

"A painter?" She blinked at the sudden change of topic.

"Yes," said Cletus, smiling a little wryly. "I was just starting to make a living at it when my draft number came up, and I decided to go into the Alliance Military Academy, after all, the way my family had wanted me to from the beginning. Then I got wounded, of course, and discovered I liked the theory of military art. So painting got left behind."

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While he was talking she had come to a halt automatically before one of the stateroom doors lining the long, narrow corridor. But she made no attempt to open it. Instead she stood, staring at him.

"Why did you ever leave teaching at the Academy, then?" she asked.

"Someone," he said, humorously, "has to make the worlds safe for scholars like myself."

"By making a personal enemy out of Dow deCastries?" she said, incredulously. "Didn't it teach you anything when he saw through your game with the teacups and the sugar cubes?"

"But he didn't," said Cletus. "Oh, I ought to admit he did a very good job of covering up the fact he hadn't."

"*He* covered up?"

"Certainly," Cletus answered. "He lifted the first cup out of overconfidence, feeling sure he could handle whatever came of my shell game. When he turned up the first cube he thought I had blundered, not he. With the second cube, he revised his ideas, but was still overconfident enough to try again. When he turned up the third cube he finally woke to the fact that the game was completely under my control. So he had to find an excuse for stopping it and refusing to choose a fourth time."

She shook her head.

"This is all the wrong way around," she said, unbelievingly. "You're twisting what happened to make it look the way you want it."

"No," said Cletus. "DeCastries was the one who twisted it, with his actually very clever explanation of why he wouldn't lift a cup a fourth time. The only trouble was, it was a false explanation. He knew he'd find a sugar cube under any cup he lifted."

"How could he?"

"Because I had cubes under all three cups, of course," said Cletus. "When I lifted one cube from the bowl, I palmed two others. By the time he got around to the fourth choice, deCastries had probably figured that out. The fact that the game turned out to be the avoiding of finding a cube, instead of trying to find one, misled him at first. But pointing it out by then would have been too late to keep him from looking foolish at having played the game three times already. People like deCastries can't afford to look foolish."

"But why did you do it?" Melissa almost cried. "Why do you want to make an enemy like that?"

"I need to get him involved with me," said Cletus, "so I can make use of him. Unless I can make him annoyed enough to thrust, I can't parry. And only by successfully continuing to parry every attempt he makes can I finally get his whole attention. Now you see," he went on, a little more gently, "why you ought to be worrying about your own involvement with Dow de-

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Castries instead of mine. I can handle him. On the other hand, you—"

"*You*—" Suddenly blazing with anger, she turned and jerked open the door. "You absolute— Go mix yourself up with Dow. Get yourself chewed up to mincemeat. I hope you do! But stay away from me. And from Dad! Do you hear me?"

He looked at her; and a slight shadow of something like pain passed through him.

"Of course," he said, stepping back. "If that's what you want."

She went in, slamming the door behind her. He stood for a second, looking at its blank surface. For a moment with her there, the self-imposed barrier of isolation he had set up around himself many years ago, when he found others did not understand him, had almost melted. But it was back now.

He drew a short, deep breath that was almost a sigh. Turning, he went off down the corridor in the direction of his own stateroom.

IV

For the next four days Cletus avoided Melissa and her father—and was ignored in turn by deCastries and Pater Ten. Mondar, on the other hand, grew to be almost a close acquaintance; a circumstance Cletus found not only pleasant, but interesting.

The fifth day out from Earth, the spaceliner went into parking orbit around Kultis; like its sister planet Mara, a green, warm world with transient ice caps and only two major continental masses, north and south, as it had been with Earth during the Gondwandaland period of the home planet's geological past. The shuttle boats from the chief cities of the various Kultan colonies began to come up to take off passengers.

On a hunch, Cletus tried to phone down to Alliance Headquarters in Bakhalla for reporting and billeting information. But the space-to-surface circuits were all tied up by the party for Neuland, in the forward evacuation lounge. Which meant, Cletus discovered with a little quiet inquiry, Pater Ten speaking for Dow deCastries. This, of course, was blatant favoritism on the part of a vessel of supposedly neutral registry. Cletus's hunch flowered into suspicion. One of those calls could well be concerned with him.

Glancing around as he turned from the phone, Cletus caught sight of the blue robe of Mondar, who was standing by the closed hatch of the midship lounge, only a few steps from Melissa and Eachan Khan. Cletus limped briskly over to the Exotic.

"Phones tied up," Cletus said. "Thought I'd ask Alliance Forces HQ for instructions. Tell me, is there much activity in close to Bakhalla by Neuland guerrillas, these days?"

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"Right up to our front doors," answered Mondar. He looked at Cletus shrewdly. "What's the matter? Just now remembering how you impressed Dow at dinner, that first day on board here?"

"That?" Cletus lifted an eyebrow. "You mean deCastries goes to the trouble of making special guerrilla targets out of every light colonel he meets?"

"Not every one, of course," said Mondar, and smiled. "But in any case there's no cause for alarm. You'll be riding into Bakhalla with Melissa, Eachan and myself in a command car."

"That's reassuring . . ." said Cletus. But his thoughts were already halfway elsewhere. Clearly, whatever effect he had achieved with Dow deCastries, he had been at least partly transparent to Mondar.

Which was all right, he thought. The trail he had laid out toward his announced goal was baited along its length for just the sort of subtle mind which could envision purposes at work invisible to less perceptive men. It was that sort of mind deCastries possessed, and Mondar's was complex and deep enough in its own way to prove a useful control subject.

A gong rang through the lounge, cutting through the sounds of conversation.

"Shuttle boat for Bakhalla, now docking," droned the First Officer's voice from a wall speaker. *"Now docking, midships lounge hatch, the shuttle boat for Bakhalla. All passengers for Bakhalla should be ready to board . . ."*

Cletus found himself swept forward as the hatch opened, revealing the bright metal connecting tunnel to the shuttle boat. He and Mondar were separated by the crowd.

The shuttle boat was little more than a cramped, uncomfortable, space-and-atmosphere-going bus. It roared, dropped, plunged, jerked, and finally skidded them all to a halt on a circle of scarred brown concrete, surrounded by broad-leaved jungle—a green backdrop laced with what seemed to be threads of scarlet and bright yellow.

Shuffling out of the shuttle boat door into the bright sunlight, Cletus stepped a little aside from the press to get his bearings. Other than a small terminal building some fifty yards off, there was no obvious sign of man but the shuttle boat and the concrete pad. The jungle growth towered over a hundred feet high in its surrounding circle. *An ordinary, rather pleasant tropical day,* Cletus thought. He looked about for Mondar—and was abruptly jolted by something like a soundless, emotional thunderclap.

Even as it jarred him, he recognized it from its reputation. It was "reorientation shock"—the abrupt

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impact of a whole spectrum of differences from the familiar, experienced all at once. His absent-mindedness as he had stepped out into this almost Earth-like scene had heightened its effect upon him.

Now, as the shock passed, he recognized all at once that the sky was not blue so much as bluish-green. The sun was larger and a deeper golden yellow than the sun of Earth. The red and yellow threads in the foliage were not produced by flowers, or vines, but by actual veins of color running through the leaves, themselves. And the air was heavily humid, filled with odors which intermingled to produce a scent something like that of a mixture of grated nutmeg and crushed grass stems. Also, it was vibrant with a low-level, but steady, chorus of insect or animal cries; ranging from the sounds like the high tones of a toy tin flute to the mellow booming of an empty wooden barrel being thumped—but all with a creakiness foreign to the voices of Earth.

Altogether the total impact of light, color, odor and sound, even now that the first shock was passed, caught Cletus up in a momentary immobility, out of which he recovered to find Mondar's hand on his elbow.

"Here comes the command car," Mondar was saying, leading him forward. The vehicle he mentioned was just emerging from behind the terminal building with the wide shape of a passenger float-bus behind it. "Unless you'd rather ride the bus with the luggage, the wives and the ordinary civilians?"

"Thanks, no. I'll join you," said Cletus.

"This way, then," said Mondar.

Cletus went with him as the two vehicles came up and halted. The command car was a military plasma-powered air-cushion transport, with half-treads it could lower for unusually rough cross-country going. Over all, it was like an armored version of the sport cars used for big game hunting. Eachan Khan and Melissa were already inside, occupying one of the facing pair of passenger seats. Up front on the open seat sat a round faced young Army Spec 9 at the controls with a dally gun beside him.

Cletus glanced at the clumsy hand weapon with interest as he climbed aboard the car over the rightside treads. It was the first dally gun he had seen in use in the field–although he had handled and even fired one, himself, back at the Academy. It was a crossbreed—no, it was an out-and-out mongrel of a weapon—designed originally as a riot-control gun and all but useless in the field where a speck of dirt could paralyze some necessary part of its complex mechanism inside of the first half hour of combat.

Its name was a derivative from its original, unofficial designation of "dial-a-gun"—which name

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proved that even Ordnance men were capable of humor. With proper adjustment it could deliver anything from a single .29 caliber pellet slug to an eight-ounce, seeker-type canister shell. It was just the sort of impractical type of weapon that set Cletus's tactical imagination to perking over possible unorthodox employments of it in unexpected situations.

But he and Mondar were in the car, now. With a hiss from its compresssor, the command car's heavy body rose ten inches from the concrete and glided off on its supporting cushion of air. An opening in the jungle wall loomed before them; and a moment later they were sliding down a narrow winding road of bonded earth, with two deep weed-choked ditches on each side unsuccessfully striving to hold back the wall of jungle that towered up on either side to arch thinly together, at last, over their heads.

"I'm surprised you don't burn black, or spray-kill, a cleared area on each side of the road," said Cletus, to Mondar.

"On the important military routes, we do," said the Exotic. "But we're short-handed these days and the local flora grows back fast. We're trying to variform an Earth grain, or grass, to drive out the native forms, and plant it alongside our roads—but we're shorthanded in the laboratories, too."

"Difficult—the services and supply situation—" jerked out Eachan Khan, touching the right tip of his waxed, gray moustache protectively as the command car came unexpectedly upon a giant creeper that had broken through the bonded earth of the roadway from below, and was forced to put down its treads to climb across.

"What do you think of the dally gun?" Cletus asked the Dorsai mercenary, his own words jolted from his lips by the lurching of the command car.

"Wrong sort of direction for small arms to go—" The creeper left behind, the car rose smoothly on to its supporting air cushion again. "Nagle sticks—dally guns—ultrasonics to set off, jam or destroy the components in your enemy's weapons—it's all getting too complicated. And the more complicated, more difficult the supply situation, the tougher to keep your striking forces really mobile."

"What's your idea, then?" Cletus asked. "Back to crossbows, knives and shortswords?"

"Why not?" said Eachan Khan, surprisingly. His flat, clipped voice colored with a new note of enthusiasm. "Man with a crossbow in the proper position at the proper time's worth a corps of heavy artillery half an hour late and ten miles down the road from where it should be. What's that business about '. . . *For want of a nail a horseshoe was lost* . . .'?"

"'. . . *For want of a horseshoe*

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a horse was lost. For want of a horse a rider was lost . . ." Cletus quoted it through to the end; and the two men looked at each other with a strange, wordless but mutual respect.

"You must have some training problems," said Cletus, thoughtfully. "—On the Dorsai, I mean. You must be getting men with all sorts of backgrounds, and you'd want to turn out a soldier trained for use in as many different military situations as possible . . ."

"We concentrate on basics," said Eachan. "Aside from that, it's our program to develop small, mobile, quick-striking units; and then get employers to use them as trained." He nodded at Mondar. "Only real success in use so far's been with the Exotics, here. Most employers want to fit our professionals into their classical tables of organization. Works, but it's not an efficient use of the men, or the units. That's one reason we've had some arguments with the regular military. Your commanding officer here, General Traynor—" Eachan broke off. "Well, not for me to say."

He dropped the subject abruptly, sat up and peered out through the open window spaces in the metal sides of the command car, at the jungle. Then he turned and called up to the driver on the outside seat.

"Any sign of anything odd, out there?" he asked. "Don't like the feel of it, right along in here."

"No, sir, Colonel!" called the driver back down. "Quiet as Sunday din—"

A thunderclap of sound burst suddenly all around them. The command car lurched in the same moment and Cletus felt it going over as the air around them filled with flying earth. He had just a glimpse of the driver, still holding the dally gun but now all but headless, pitching into the right-hand ditch. And then the car went all the way over on its side and there was a blurred moment in which nothing made sense.

Things cleared again, suddenly. The command car was lying on its right side, with its armored base and its left and rear window spaces, only, exposing them to the outside. Mondar was already tugging the magnesium shutter across the rear window and Eachan Khan was pulling the left windowspace shutter closed, overhead. They were left in a dim metal box with only a few, narrow, sunlit apertures toward the front and around the armored section behind the driver's seat.

"You armed, Colonel?" asked Eachan Khan, producing a flat, little, dart-thrower sidearm from under his tunic and beginning to screw a long sniper's barrel onto it. Solid pellets from sporting guns—theoretically civilian weapons but deadly enough at jungle ranges—were already beginning to

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whang and yowl off the armor-plating of the car surrounding them.

"No," said Cletus, grimly. The air was already close in the car and the smell of crushed grass and nutmeg was overwhelming.

"Pity," said Eachan Khan. He finished screwing on the sniper barrel, poked its muzzle through one of the aperture cracks and squinted into the daylight. He fired—and a bearded man in a camouflage suit came crashing out of the jungle wall on the far side of the road, to lie still.

"The bus will hear the firing as it comes up behind us," said Mondar out of the dimness behind Cletus. "They'll stop and phone ahead for help. A relief squad can get here by air in about fifteen minutes after Bakhalla hears about us."

"Yes," said Eachan Khan, calmly, and fired again. Another body, invisible this time, could be heard crashing down out of a tree to the ground below. "They might get here in time. Odd these guerrillas didn't let us pass and wait for the bus in the first place. Bigger package, less protection, and more prizes inside. Keep your head down, Colonel."

This last sentence was directed at Cletus, who was heaving and wrenching in a fury at the shutter on the down side of the car. Half-propped off the road surface as the car was by the bulge of that same surface under it, opening the shutter gradually produced a space facing on the ditch into which the dead driver had pitched—a space large enough for Cletus to crawl out.

The jungle-hidden riflemen outside became aware of what he was up to; and a fusillade of shots rang against the armored underneath of the car—though, because of the narrow angle it made with the ground, none came through the opening Cletus had produced. Melissa, suddenly, recognizing what was in his mind, caught at his arm as he started through the opening.

"No—" she said. "It's no use! You can't help the driver. He was killed when the mine went off—"

"The hell with that," panted Cletus, for a fire fight did not encourage the best in manners; and he was not like her father, a devout, presbyterian Scot-Pathan. "The dally gun went with him when he fell!"

Wrenching himself free of her grasp he wriggled out from under the armored car, jumped to his feet and made a dash for the ditch where the body of the driver lay invisible. An explosion of shots from the surrounding jungle rang out; and he stumbled as he reached the ditch edge, tripped, spun about and plunged out of sight. Melissa gasped, for there was the sound of thrashing from the ditch and then an arm was flung up into sight to quiver for a second and then hang there in plain view, reaching up like a desperate beckoning for help.

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In response a single shot sounded from the jungle and a slug blew away half the hand and wrist. Blood spattered from it; but the hand was not withdrawn; and almost immediately the bleeding dwindled, with none of the steady spurt and flow that would have signaled a still-pumping living heart behind it.

Melissa shuddered, staring at the arm, and a shivering breath came from her. Glancing about for a minute, her father put his free hand for a moment on her shoulder.

"Easy, girl," he said. He squeezed her shoulder for a second and then was forced back to his loophole as a new burst of shots rang against the body of the car. "They'll rush us—any minute now," he muttered.

Sitting cross-legged in the dimness like a figure meditating and remote, Mondar reached out and took one of the staring girl's hands in his own. Her gaze did not move from the arm in the ditch, but her own grip tightened, tightened, on Mondar's hand with a strength that was unbelievable. She did not make a sound, but her gaze never moved and her face was as white and still as a mask.

The shots from the jungle stopped suddenly. Mondar turned to look at Eachan.

The Dorsai looked back over his own shoulder and their eyes met.

"Any second now," said Eachan, in businesslike tones. "You're a fool if you let them take you alive, Outbond."

"When there is no more point in living, I can always die," answered Mondar, serenely. "No man commands this body but myself."

Eachan fired again.

"The bus," said Mondar, calmly, "ought to have got close enough to hear the firing and phoned, by this time."

"No doubt," said the Dorsai. "But help'd have to be on top of us right now, to do any good. Any second, as I say, they'll give up sniping at us and make a rush. And one pistol won't hold off a dozen or more. Here they come now!"

Through the aperture, over the soldier's shoulder-strap, Mondar could see the two waves of camouflaged-overalled figures that erupted suddenly from both sides of the jungle trail and came pouring down upon the car. The little handgun in Eachan's hand was speaking steadily, and, magically—for its voice was almost lost in the general din and uproar—figures in the front of the rush were going down.

But there was only a matter of fifteen meters or so for the attackers to cover; and then the jungle and the little patch of sunlight Mondar could see were blotted out by camouflaged overalls.

The gun in Eachan's hand

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clicked empty—and in that second, just as the shape of the first guerrilla darkened the opening through which Cletus had got out, the wild yammer of a dally gun roared from behind the attackers, and they melted like sand figures under the blow of a heavy surf.

The dally gun yammered on for a second longer and then stopped. Stillness flowed in over the scene like water back into a hole made in a mountain lake by a falling stone. Eachan pushed past the frozen figures of Mondar and his daughter and crawled out from the car. Numbly they followed him.

Limping on his artificial right knee joint, Cletus was climbing out of the ditch, dragging the shape of the dally gun behind him. He got to his feet on the roadway just as Eachan came up to him.

"Very well done," said the Dorsai, with a rare note of warmth back in his usually stiff voice. "Thank you, Colonel."

"Not at all, Colonel," said Cletus, a little shakily. Now that the excitement was over, his one knee that was still flesh and blood was trembling with reaction, invisibly but perceptibly under his uniform trouser leg.

"Very well done, indeed," said Mondar as quietly as ever, joining them. Melissa had halted and was staring down into the ditch where the dead driver lay. It was his arm that had been upflung, obviously with intention by Cletus, as he lay thrashing about like a deeply wounded man, invisible in the ditch. Melissa shivered and turned away to face the rest of them.

She stared at Cletus out of her white face in which a strange mixture of emotions were now intermingled. Mondar spoke.

"Here come our relief forces," commented the Exotic, gazing skyward. A couple of battle aircars, with a squad of infantry aboard each, were dropping down to the roadway. A hiss of a braking airjet sounded behind them and they turned to see the bus slide into view around a turn in the road. "As well as our signal section," he added smiling a little.

V

The command car, its compressor damaged by guerrilla fire, was left behind. One of the battle aircars carried its four surviving passengers the rest of the way into the port city of Bakhalla. The aircar dropped the four of them off at the Transport Section of Alliance Headquarters in Bakhalla. Eachan Khan and Melissa said good-bye and left by autocab for their own residence in the city. Mondar opened the door of another autocab and motioned Cletus inside.

"You'll need to go to Alliance HQ for your assignment and billeting; and that's on my way. I'll drop you off."

Cletus got in; Mondar reached

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to punch out a destination on the control board of the autocab. The cab rose on its air cushion and slid smoothly off between the rows of white-painted military buildings.

"Thanks," said Cletus.

"Not at all," said Mondar. "You saved all our lives back in the jungle, just now. I want to do more than just thank you. I take it you might like to talk to Dow deCastries, again?"

Cletus looked at the Outbond curiously. All his life he had enjoyed watching people of strong aims at work to achieve them; and in the five days since he had met Mondar he had become aware of a purposefulness in the Exotic that might well be as dedicated as his own.

"I thought deCastries went down to Capital Neuland."

"He did," said Mondar as the autocab made a right turn into a somewhat broader boulevard, and began to approach a large building of white concrete with the Alliance flag flying on top of it. "But Neuland's only twenty-five minutes from here by air. The Coalition hasn't any direct diplomatic relations with our Exotic government, here on Kultis; and neither our people nor Dow want to pass up a chance to talk. After all, it's really the Coalition we're fighting—Neula couldn't last six weeks without them. So I'm giving an unofficial little party at my home this evening—with a buffet supper and general conversation. Eachan and Melissa will be there. I'd appreciate having you, too."

"Be happy to come," said Cletus. "Can I bring my aide?"

"Aide?"

"A first lieutenant named Arvid Johnson, if I'm lucky enough to find him still unassigned," Cletus said. "One of my former students at the Academy. He came to visit me when he was home from here on leave a couple of months ago. It was what he told me that got me interested in Bakhalla."

"Was it? Well, bring him by all means." The autocab slid to a halt before the walkway leading up to the entrance of the large, white building. Mondar pressed a button and the autocab door next to Cletus swung open. "Bring anyone you think might enjoy it. About eight o'clock."

"We'll be there," said Cletus. He turned and let the walkway carry him up into the Headquarters building.

"Colonel Cletus Grahame?" echoed the narrow-faced young second lieutenant at the cluttered desk behind the glass door of the Billeting and Assignments office, when Cletus confronted him. "You're to report to General Traynor immediately—*immediately* when you arrive."

He had a high tenor voice and he grinned unpleasantly as he spoke. Cletus smiled agreeably,

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asked directions to the general's office, and left.

The glass door he finally found marked *Brigadier General John Houston Traynor* led him first into an outer office where a square-set, half-bald colonel in his early fifties stood, evidently just completing the giving of some directions to an overweight, thirtyish captain behind the room's single desk. Finishing, the colonel turned around and eyed Cletus.

"You're Grahame?" he asked.

"That's right, Colonel," said Cletus pleasantly, "and you—?"

"Dupleine," said the other, ungraciously. "I'm chief of staff to General Traynor. You're not going into the officers' pool, then?"

"I'm on special assignment from Washington, Colonel," said Cletus.

Dupleine grunted, whirled around, and went out the door Cletus had just entered. Cletus looked back at the fat captain behind the desk.

"Sir," said the captain. His voice held the hint of a note of sympathy. His face was not unkind, and even intelligent, in spite of the heavy dewlap of the double chin supporting it from beneath. "If you'll just sit down a moment, I'll tell General Traynor you're here."

Cletus sat down and the captain leaned forward to speak into the intercom grille of his desk. The reply he received was inaudible to Cletus, but the captain looked up and nodded.

"You can go right in, Colonel," he said, nodding to another door behind his desk.

Cletus sat down and the captain

As Cletus stepped through the door into the farther office, he found himself directly facing a much larger desk behind which sat a bull-like man in his mid-forties with a heavy-boned face decorated by a startling pair of thick, black eyebrows. "Bat" Traynor, the general had been nicknamed, Cletus recalled, because of those brows. Bat Traynor stared now, the brows pulled ominously together as Cletus walked forward to the far side of his desk.

"Colonel Cletus Grahame reporting, sir," Cletus said, laying his travel orders on the desk. Bat shoved them aside with one big-knuckled hand.

"All right, Colonel," he said. His voice was a rough-edged bass. He pointed to a chair facing him at the left side of his desk, "Sit down."

Cletus limped gratefully around to the chair and dropped into it. He was beginning to feel the fact that he had strained one or more of the few remaining ligaments in his bad knee, during the episode in the ditch outside of town. He looked up to see Bat still staring point-blank at him.

"I've got your dossier here, Colonel," Bat said, after a moment. He flipped open the gray plastic folder that lay on the desk before him and looked down at it. "You

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come from an Academy family, it says, here. Your uncle was General Chief of Staff at Geneva Alliance HQ just before he retired, eight years ago. That right?"

"Yes, sir," said Cletus.

"And you"—Bat flipped papers with a thick forefinger, scowling a little down at them—"got that bad knee in the Three-Month War on Java, seven years ago? Medal of Honor, too?"

"Yes," said Cletus.

"Since then"—Bat flipped the folder shut and raised his eyes to stare unwaveringly once more across at Cletus—"you've been on the Academy staff. Except for three months of active duty, in short, you've done nothing in the Army but pound tactics into the heads of cadets."

"I've also," said Cletus, carefully, "been writing a comprehensive 'Theory of Tactics and Strategical Considerations.' "

"Yes," said Bat, grimly. "That's in there, too. Three months in the field and you're going to write twenty volumes."

"Sir?" said Cletus.

Bat threw himself back heavily in his chair.

"All right," he said. "You're supposed to be here on special assignment to act as my tactical adviser." The black eyebrows drew together in a scowl that rippled like battle flags in the wind. "I don't suppose I've got you because you heard there was a move on to clean out all the dead wood at the Academy; and you pulled strings to be sent to some nice soft job where there's nothing for you to do?"

"No, sir," said Cletus quietly. "I may have pulled a string or two to get sent here. But, with the general's permission, it wasn't because I thought this a soft job. I've got to do a great deal out here."

"I hope not, Colonel. I hope not," said Bat. "It just happens I put in a request for a dozen jungle-breaker tanks, three months ago. You're what I got instead. Now, I don't give a damn what the Academy wants to do with its Tactics Department. The kids just have to come out here into the field and relearn it all over again under practical conditions, anyway. But I needed those tanks. I still need them."

"Possibly," said Cletus, "I can come up with some means to help the general get along without them."

"I don't think so," said Bat, grimly. "What I think, is that you're going to hang around here for a couple of months or so; and turn out not to be particularly useful. Then I'm going to mention that fact to Alliance HQ back on Earth; and ask for my jungle-breakers again. I'll get them; and you'll be transferred back to Earth; if with no commendations, at least without any black marks, on your record. That's if everything goes

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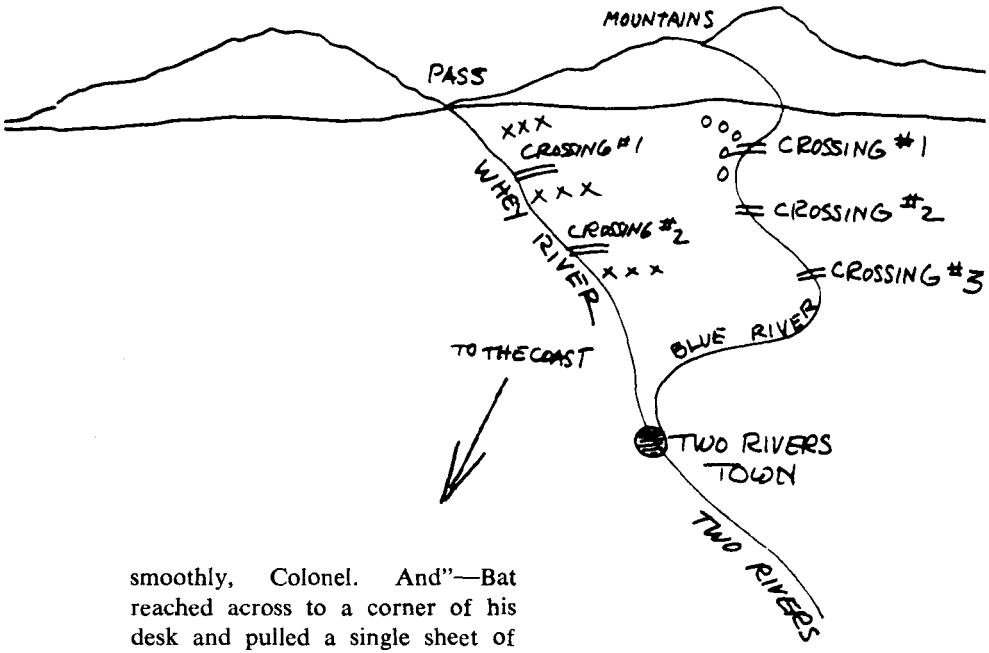

smoothly, Colonel. And"—Bat reached across to a corner of his desk and pulled a single sheet of paper toward him—"speaking of the way things go, I've got a report here that you got drunk your first night on the ship headed here, and made a fool of yourself in front of the Outworld's Secretary for the Coalition, who was aboard."

"That's fast reporting," said Cletus, "considering that when our party for Bakhalla left the ship, the phones aboard were all still tied up by Coalition people. I take it this report to the general comes from one of them?"

"It's none of your business who made the report!" rumbled Bat. "As a matter of fact, it comes from the captain of the spaceship."

Cletus laughed.

"What's the joke, Colonel?" Bat's voice rose.

"The idea, sir," said Cletus, "of a civilian ship commander reporting on the fitness of an Alliance officer."

"You won't find it all that funny if I have the information entered in your record, Colonel," said Bat. He stared at Cletus, at first grimly, and then a trifle disconcertedly, when Cletus did not seem greatly sobered by this threat. "But, never mind the Coalition, or any civilian ship-

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master. I'm your commanding officer; and *I'm* asking for an explanation of your drunkenness."

"There isn't any explanation—" began Cletus.

"Oh?" said Bat.

"No explanation, I was going to say," continued Cletus, "because no explanation's necessary. I've never been drunk in my life. I'm afraid the ship's captain was wrongly advised—or drew the wrong conclusion."

"Just made a mistake, eh?" said Bat, ironically.

"As it happens," said Cletus. "I think I've got a witness who'll testify I wasn't drunk. He was at the table, there. Mondar, the former Outbond from here to St. Louis Enclave."

Bat's mouth, opened to retort before Cletus was half done, closed instead. The general sat silent for several seconds. Then, his eyebrows quivered and the frown line between his eyes smoothed somewhat.

"Then why this report?" he asked in a more neutral voice.

"The ship's people, from what I saw," said Cletus, "seemed partial to the Coalition people aboard."

"Well, then, damn it!" exploded Bat. "If you saw them jumping to the wrong conclusion, why didn't you set them straight?"

"As a matter of elementary strategy," said Cletus, "I thought it wouldn't do any harm to let the Coalition people pick up as low an opinion of me as possible—of me, and my usefulness to you, as a tactical expert."

Bat looked balefully at him.

"Their opinion couldn't be any lower than mine, anyway," he said. "You're no use to me, Colonel. This is a dirty, little, hole-in-the-wall war, with no room for strategical mysteries. This Exotic colony's got brains, money, technical developments and a seacoast. The Neulanders've got no seacoast, no industry and too much population for their back-country farms to support—because of this multiple-wife religious cult of theirs. But that same excess population's just fine for supplying guerrillas. So, the Neulanders want what the Exotics've got and the Coalition's trying to help them get it. We're here to see they don't. That's the whole situation. What the Neuland guerrillas try to do, and what we do to stop them from doing it, is just plain obvious. I need a book-strategy and tactics expert like I need a hundred-piece symphony orchestra. And I'm sure deCastries and the other Coalition people on that ship knew it as well as I do."

"Maybe I won't be quite as useless as the general thinks," said Cletus, unperturbed. "Of course, I'll have to survey and study the situation, starting by setting up a plan for trapping those guerrillas they'll be infiltrating through Etter's Pass, up country, in the next few days."

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Bat's eyebrows shot up into flag position again.

"New guerrillas? Who told you anything about Etter's Pass?" he snapped. "What kind of a rabbit is this you're trying to pull out of your hat?"

"No rabbit," said Cletus. "Not even a professional judgment, I'm afraid. Just common sense. With Dow deCastries here, the Neulanders have to try to put on some sort of spectacular during his visit. Have you got a map handy?"

But jabbed a button on the surface of his desk, and the wall of the room to Cletus's left lit up suddenly with the projection of a large map, showing the long narrow coastline country of the Exotic colony, and the interior range of mountains which divided it from the Neuland colony inland. Cletus stepped over to the projection, looked it over, and reached up to tap with his left forefinger at a point in the middle of the mountain range running down the left-side of the map.

"Here's Etter's Pass," he said to Bat. "A good, broad cut through the mountains, leading from Neuland down to Bakhalla—but according to reports, not much used by the Neulanders, simply because there's nothing much worth raiding on the Exotic side for over a hundred miles in any direction. On the other hand, it's a fairly easy pass to get through. There's nothing but the small town of Two Rivers down below it, here. Of course, from a practical standpoint, the Neulanders are better off sending their guerrillas into the country through passes closer to the larger population centers. But, if they aren't after profit so much as spectacle, it'd pay them to infiltrate a fairly good sized force through here in the next few days. So that a week from now they can hit one of the smaller coastal towns in force—maybe even capture and hold it for a few days."

Cletus turned, limped back to his chair and sat down. Bat was frowning at the map.

"At any rate," Cletus said, "it shouldn't be too difficult to set up a net to sweep most of them in, as they try to pass Two Rivers. In fact, I could do it myself—if you'd let me have a battalion of jump troops . . ."

"Battalion! *Jump troops!*" Bat started suddenly out of his near-trance and turned a glare on Cletus. "What do you think this is? A classroom, where you can dream up whatever force you need for a job? There're no jump troops on Kultis. And, as for giving you a battalion of any kind of troops —even if your guess has something going for it—" Bat snorted.

"The guerrillas are coming, all right. I'd bet my reputation on it," said Cletus, undisturbed. "In fact, you might say I've already bet it, come to think of it. I remember

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talking to some of my fellow staff members at the Academy, and a friend or two down in Washington, and forecasting that infiltration, just as soon as Dow deCastries reached Neuland."

"You forecast . . ." Bat's tone became thoughtful suddenly. He sat behind his desk, pondering Cletus with knitted brows. Then his dark eyes sharpened. "So you bet your reputation on this, did you, Colonel? But spare troops are something I haven't got; and in any case, you're here as a technical advisor. Tell you what. I'll pull a company off Rest and Retraining, and send them out with a field officer in charge. He'll be junior to you, of course; but you can go along if you want to. Officially, as an observer only; but I'll tell the officer commanding that he's to keep your advice in mind. Good enough?"

The last two words were barked sharply at Cletus, in a put-up-or-shut-up tone of voice.

"Certainly," said Cletus. "If the general wishes."

"All right!" Bat beamed suddenly, showing his teeth in a hearty, wolfish grin. "You can go on and see about your quarters, then, Colonel. But stay on call."

Cletus rose to his feet.

"Thank you, sir," he said; and took his leave.

"Not at all, Colonel. Not at all," he heard Bat's voice saying with almost a chuckle in it, as Cletus closed the door of the office behind him.

Cletus left the Headquarters building and went to see about establishing himself. Once set up in the Bachelor Officers' Quarters, he strolled over to the Officers' Pool HQ with a copy of his orders, and checked to see if Second Lieutenant Arvid Johnson, of whom he had spoken to Mondar, was still unattached. Informed that he was, Cletus filed a request for the lieutenant to be assigned to him as a research staff member and requested that Johnson get in touch with him at the BOQ immediately.

He returned to the BOQ himself. Less than fifteen minutes later the signal on his door buzzed to announce a visitor. Cletus rose from his chair and opened it.

"Arvid!" he said, letting the visitor in and closing the door behind him. Arvid Johnson stepped inside, turned and smiled happily down at Cletus as they shook hands. Cletus himself was tall, but Arvid was a tower, from the soles of his black dress boots to the tips of his short-cropped, whitish-blond hair.

"You came after all, sir," Arvid said. "I know you said you'd come; but I couldn't believe you'd really leave the Academy for this."

"This is where things are going on," said Cletus.

"Sir?" Arvid looked incredulous. "Away out here on Kultis?"

"It's not the locality so much,"

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said Cletus, "as the people in it, that make things happen. Right now we've got a man among us named Dow deCastries and the first thing I want from you is to go with me to a party for him, tonight."

"Dow deCastries?" Arvid said, and shook his head. "I don't think I know—"

"Secretary to the Outworlds for the Coalition," said Cletus. "He came in on the same ship from Earth as I did. A gamesman."

Arvid nodded. "Oh, one of the Coalition bosses," he said. "No wonder you say things might start to happen around here. What did you mean by gamesman, sir? You mean he likes sports—"

"Not in the usual sense," said Cletus. Then Cletus quietly quoted: ". . . *Whose game was empires and whose stakes were thrones. Whose table, earth—whose dice were human bones . . .*"

"Shakespeare?" asked Arvid.

"Byron," said Cletus, "in his 'The Age of Bronze,' referring to Napoleon."

"Sir," said Arvid, "you don't really mean this deCastries is another Napoleon?"

"No more," answered Cletus, "than Napoleon was an earlier deCastries. But they've got points in common."

Arvid waited for a moment longer, but Cletus said nothing more. The big young man nodded again.

"Yes, sir," he said. "What time are we supposed to go to this party, Colonel?"

VI

Thunder, deeper toned than Earth's, muttered beyond the ridge of hills inland from Bakhalla like a grumbling of giants, as Cletus and Arvid arrived at the residence of Mondar. But above the city the sky was clear. Out over the rooftops of the buildings leading down to the harbor, the yellow sun of Kultis was filling sky and sea, alike with pinkish gold.

Mondar's home sat alone on a small hill in the eastern suburbs of the city, surrounded by trees and flowering shrubs, both native and Earth-variform. The building itself was made up of an assortment of basic building units, put together originally with an eye more toward utility than appearance. However, utility no longer controlled any but the basic forms of the house. In everything else an artistic and gentle influence had been at work.

The hard white blocks of the building units, now tinted by the sunset, did not end abruptly at the green lawn; but were extended into arbors, patios, and half-rooms, walled with vine-covered trellises. Once Cletus and Arvid had left their car and passed into the first of these outer structures of the house, it became hard for them to tell if they were indoors or not.

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Mondar met them in a large, airy half-room with solid walls on three sides only, and an openwork of vines on the fourth. He led them deeper into the house, to a long, wide, low-ceilinged room, deeply carpeted and scattered with comfortably overstuffed chairs and couches. A number of people were already there, including Melissa and Eachan Khan.

"DeCastries?" Cletus asked Mondar.

"He's here," said Mondar. "He and Pater Ten are just finishing their talk with some of my fellow Exotics." As he spoke he was leading the two of them toward the small bar in one corner of the room. "Punch, or whatever you'd like to drink. I've got to see some people right now—but I'd like to talk to you later, Cletus. Is that all right? I'll look you up just as soon as I'm free."

"By all means," said Cletus. He turned toward the bar as Mondar went off. Arvid was already picking up the glass of beer for which he had punched.

"Sir?" asked Arvid. "Can I get you—"

"Nothing right now, thanks," said Cletus. He was glancing around again, and his eye lit upon Eachan Khan, standing alone with a glass in his hand next to a wide window screen. "Stay around here, will you, Arvid? So I can find you easily when I want you?"

"Yes, sir," said Arvid.

Cletus went toward Eachan Khan. The older man glanced around with a stony face, as if to discourage conversation, as he came up. Then, seeing who it was, Eachan's face relaxed—insofar as it could ever be said to be relaxed.

"Evening," Eachan said. "I understand you've met your commanding officer."

"News travels fast," said Cletus.

"We're a military post, after all," said Eachan. His gaze went past Cletus for a moment, and then returned. "Also, I hear you suggested something about a new infiltration of Neulander guerrillas through Etter's Pass?"

"That's right," said Cletus. "You don't think it's likely?"

"Very likely—now you've pointed it out," said Eachan. "By the way, I got hold of those three volumes on tactics you've already published. The Exotic library here had copies. I've only had time to glance through them, so far"—his eyes suddenly locked with Cletus's—"but it looks like sound stuff. Very sound. I'm still not sure I follow your tactics of mistake, though. As deCastries said, combat's no fencing match."

"No," said Cletus. "But the principle's applicable, all the same. For example, suppose a simple tactical trap you lay for an enemy consists of enticing his forces to strike at what seems to be a weak section of your line. But when they do, your line pulls back and draws them into

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a pocket, where you surround them and pinch them off with hidden, superior forces of your own."

"Nothing new about that," said Eachan.

"No," Cletus said. "But apply the tactics of mistake to essentially the same situation. Only this time, in a succession of contacts with the enemy, you entice him into picking up a series of what seem to be small, easy victories. Meanwhile, however, you're getting him to engage a larger amount of his available forces with each contact. Then, when he finally commits the greatest part of his strength for what he conceives as one more easy win—you convert that contact into a trap and he discovers that you've gradually drawn him into a field position where he's outflanked and completely at your mercy."

"Tricky," Eachan frowned. "Too tricky, perhaps—"

"Not necessarily," said Cletus. "Imperial China and Russia both used a crude version of this, drawing invaders deeper into their territories, until the invader suddenly realized he was too far from his supply and support bases and completely surrounded by the native army. Napoleon and the retreat from Moscow."

"Still—" Eachan broke off suddenly. His gaze had gone past Cletus; and Cletus, turning, saw that Dow deCastries was now in the room. The tall, dark, elegant Outworlds Secretary for the Coalitions was now standing in conversation with Melissa, by the opposite wall.

Glancing from the two figures back to Eachan, Cletus saw that the older man's face had become as cold and still as the first sheet of ice on the surface of a deep pond, on a windless winter day.

"You've known deCastries a while, now?" Cletus asked. "You and Melissa?"

"The women all like him." Ea-

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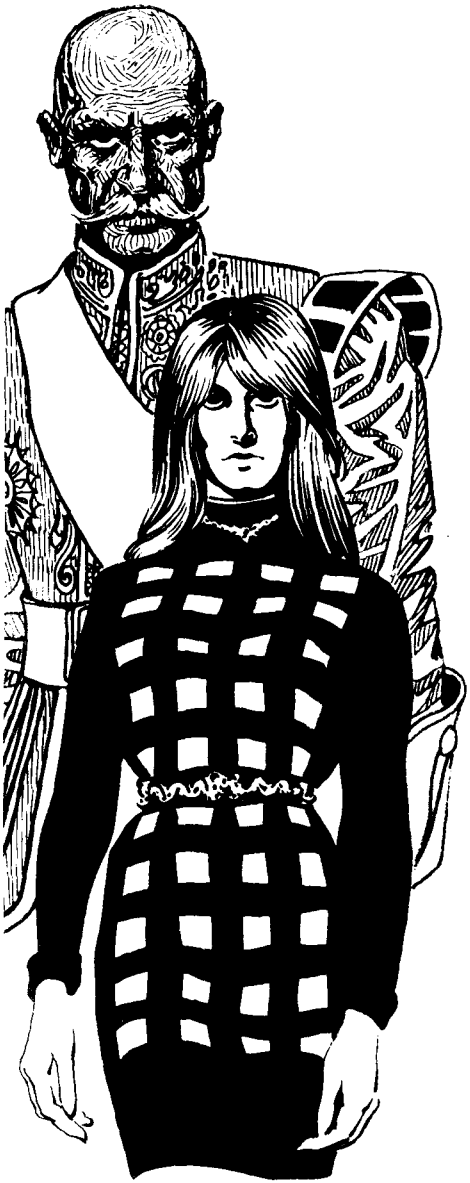

chan's voice was grim. His gaze was still on Melissa and Dow.

"Yes," said Cletus. "By the way—"

He broke off, and waited. With reluctance, Eachan removed his gaze from the pair across the room and looked back at him.

"I was going to say," said Cletus, "General Traynor came up with something strange when I was talking to him. He said he didn't have any jump troops here in Bakhalla. That surprised me. I did some reading up on you Dorsais before I came out here, and I thought a jump course was part of the training you gave your mercenaries?"

"We do," replied Eachan, dryly. "But General Traynor's like a lot of your Alliance and Coalition commanders. He doesn't think our training's good enough to qualify the men for jump troop work—or a lot of other combat field duties."

"Hm-m-m," said Cletus. "Jealousy? Or do you suppose they

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look on you mercenaries as competitors, of a sort?"

"I don't say that," said Eachan, frostily. "You draw your own conclusions, of course."

His eyes showed a desire once more to wander back across the room to Melissa and Dow.

"Oh, and something else I was going to ask you," said Cletus. "The assignment sheets for Bakhalla that I looked at back on Earth listed some Navy officers, on detached duty as marine engineers—something about river-and-harbor work. But I haven't seen any Navy people around."

"Commander Wefer Linet," said Eachan, promptly, "wearing civies, down at the end of the couch across the room there. Come along. I'll introduce you."

Cletus followed Eachan at a long slant across the room which brought them to a couch and several chairs where half a dozen men sat talking. Here, they were less than a quarter of the distance they had been before from Dow and Melissa—but still too distant to catch the conversation going on between the two.

"Commander—" said Eachan, as they reached the couch, and a short, square-faced man in his middle thirties got up promptly from the end of the couch, a drink still in his hand. "I'd like you to meet Colonel Cletus Grahame, just out from Earth, to be attached to General Traynor's staff—tactical expert."

"Happy to meet you, Colonel," said Wefer Linet, shaking Cletus's hand with a hard, friendly grip. "Dream something up for us to do besides dredging river-mouths and canals, and my men'll love you."

"I'll do that," said Cletus, smiling. "It's a promise."

"Good!" said Wefer energetically.

"You've got those large, underwater bulldozers, haven't you?" asked Cletus. "I read about them in the *Alliance Forces Journal*, seven months back, I think."

"The Mark V, yes." Linet's face lit up. "Six of them, here. Care for a ride in one, some day? They're beautiful pieces of machinery. Bat Traynor wanted to take them out of the water and use them knocking down jungles for him. Do it better than anything you Army people have, of course. But they're not designed for land work. I couldn't tell the general no, myself; but I insisted on direct orders from Earth and kept my fingers crossed. Luckily, they turned him down back there."

"I'll take you up on that ride," said Cletus. Eachan was once more watching Melissa and Dow with a stony concentration. Cletus glanced about the room and discovered Mondar, standing talking to a pair of women who looked like the wives of diplomatic personnel.

As if Cletus's gaze had an actual

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physical touch to it, the Exotic turned toward him, just then, smiled and nodded. Cletus nodded back and turned once more to Wefer, who had launched into an explanation of how his Mark Vs worked, at depths down to a thousand feet or in the teeth of thirty-knot currents and tides.

"It looks as if I may be tied up for the next few days, out of the city," Cletus said. "But after that, if for some reason I shouldn't leave town—"

"Give me a ring, anytime," Wefer said. "We're working on the main harbor here at Bakhalla right now. I can have you off the docks and down inside my command unit in ten minutes, if you'll just phone me half an hour or so ahead of time to make arrangements . . . Hello, Outbond. The colonel here's going to take a ride with me one of these days in a Mark V."

Mondar had come up while Wefer had been speaking.

"Good," said the Exotic, smiling. "He'll find that interesting." His gaze shifted to Cletus. "But I believe you wanted to talk to Dow deCastries, Cletus? His business with my people's over for the evening. You can see him, right across the room there, with Melissa."

"Yes . . . I see," said Cletus. He looked around at Wefer and Eachan. "I was just going over there. If you gentlemen will excuse me?"

He left Wefer with a promise to phone him at the earliest opportunity. As he turned away, he saw Mondar touch Eachan lightly on the arm and draw him off to one side in conversation.

Cletus limped over to where Dow and Melissa were still standing together. As Cletus came up they both turned to look at him, Melissa with a sudden, slight frown line between her darkened eyebrows. But Dow smiled genially.

"Well, Colonel," he said. "I hear you had a close call, coming in from the spaceport, earlier today."

"Only the sort of thing to be expected, here on Bakhalla, I suppose," said Cletus.

They both laughed easily; and the slight frown line between Melissa's eyes faded.

"Excuse me," she said to Dow. "Dad's got something to say to me, I guess. He's beckoning me over. I'll be right back."

She left. The gazes of the two men met and locked.

"So," said Dow, "you came off with flying honors—defeating a guerrilla band single-handed."

"Not exactly. There was Eachan and his pistol." Cletus watched the other man. "Melissa might have been killed, though."

"So she might," said Dow, "and that would have been a pity."

"I think so," said Cletus. "She deserves better than that."

"People usually get what they deserve," said deCastries. "Even Melissas. I didn't think scholars

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concerned themselves with individuals?"

"With everything," said Cletus.

"I see," said deCastries. "Certainly with sleight-of-hand. You know, I found a sugar cube under that middle cup after all? I mentioned it to Melissa and she said you'd told her you'd had cubes under all three cups."

"I'm afraid so," Cletus said.

They looked at each other.

"It's a good trick," said deCastries. "But not one that'd work a second time."

"No," said Cletus. "It always has to be different, a second time."

DeCastries smiled, a tiger's smile.

"You don't sound much like a man in an ivory tower, Colonel," he said. "I can't help thinking you like theory less and action more than you admit. Tell me"—his eyes hooded themselves amusedly under his straight brows—"if it comes down to a simple choice, doesn't it tempt you to practice rather than preach?"

"No doubt about it," said Cletus. "But one drawback to being a scholar is you're likely to be an idealist, too. And in the long run, when these new worlds are free to work out their own destinies without Earth's influence, one man's theories could have a longer and more useful effect than one man's practice."

"You mentioned that aboard the ship," deCastries said. "You talked about Alliance and Coalition influence being removed from worlds like Kultis. Do you still feel as safe talking like that here, with your Alliance superiors all around the place?"

"Safe enough," said Cletus. "None of them would believe it—any more than you do."

"Yes. I'm afraid I don't." DeCastries picked up a wineglass from the small table beside which he was standing, and held it briefly up to the light, twisting it slowly between thumb and forefinger. He lowered the glass and looked back at Cletus. "But I'd be interested in hearing how you think it's going to happen."

"I'm planning to help the change along a little," said Cletus.

"Are you?" said deCastries. "But you don't seem to have anything to speak of in the way of funds, armies, or political influence to help with. Now, for example, I've got those things, myself, which puts me in a much stronger position. If I thought a major change could be accomplished—to my benefit, of course—I'd be interested in altering the shape of things to come, myself."

"Well," said Cletus, "we can both try."

"Fair enough." DeCastries held the wineglass, looking at Cletus. "But you haven't told me how you'd do it. I told you what my tools are—money, armed troops, political power. What have you got? Only theories?"

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"Theories are enough, sometimes," said Cletus.

DeCastries slowly shook his head. He put the wineglass back down on the small table and lightly dusted against one another fingertips of the hand that had held the glass, as if to get rid of some stickiness.

"Colonel," he said, quietly, "you're either some new kind of agent the Alliance is trying to fasten on me—in which case I'll find out about you as soon as I can get word back from Earth—or you're a sort of interesting madman—in which case, events will take care of you in not much more time than it takes to establish the fact you're an agent."

He watched Cletus for a second. Cletus met his eye expressionlessly.

"I'm sorry to say," deCastries went on, "you're beginning to sound more and more like a madman. It's too bad. If you'd been an agent, I was going to offer you a better job than the one you have with the Alliance. But I don't want to hire a madman—he'd be too unpredictable. I'm sorry."

"But," said Cletus, "if I turned out to be a successful madman—?"

"Then, of course, it'd be different. But that's too much to hope for. So all I can say is, I'm sorry. I'd hoped you wouldn't disappoint me."

"I seem to have a habit of disappointing people," said Cletus.

"As when you first decided to paint instead of going on to the Academy and then gave up painting for a military life, after all?" murmured deCastries. "I've been a little disappointing to people in my life that way, myself. I've got a large number of uncles and cousins about the Coalition world—all very successful managers, business chiefs, just as my father was. But I picked politics—"

He broke off, as Melissa rejoined them.

"It wasn't anything . . . oh, Cletus," she said, "Mondar said if you wanted to find him he'd be in his study. It's a separate building, out behind the house."

"Which way do I go?" asked Cletus.

She pointed through an arched entrance in a farther wall of the room.

"Just go straight through there and turn left," she said. "The corridor you'll be in leads to a door that opens on the garden. His study building's just beyond it."

"Thank you," said Cletus.

He found the corridor, as Melissa had said, and followed it out into the garden, a small terraced area with paths running to a line of trees, the tops of which tossed sharply in a hot, wet wind, against a sky full of moonlight and torn cloud-ends. There was no sign of any building.

At that moment, however, just as Cletus hesitated, he caught sight

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of light glimmering through the trees ahead of him. He went out across the garden and through the trees. Past their narrow belt he came into the open before a low-roofed, garage-like structure so comfortably fitted in amongst the vegetation surrounding it that it gave the impression of being comfortably half-sunk in the earth. Low, heavily-curtained windows let out the small amount of light he had seen just now. There was a door before him, and as he approached, it slid noiselessly open. He stepped inside and it closed behind him. He stopped, instinctively.

He had walked into a softly but clearly-lit, room, more library than study in appearance, although it had something of both about it. Its air tasted strangely thin and dry and clean like air on some high mountain peak. Bookshelves inset in all four of the four walls held a surprisingly large collection of old-fashioned, printed volumes. The study console and a library retrieval system each occupied a corner of the room. But Mondar himself, the only other person in the room besides Cletus, was seated apart from these devices, on a sort of wide-surfaced and armless chair, his legs up and crossed before him, so that he sat like a buddha in the lotus position.

There was nothing except this to mark the moment and place as anything out of the ordinary—but as Cletus stepped through the door, a deep, instinctive warning shouted loudly at him, checking him just inside the threshold. He sensed an impalpable living tension that held the very air of the room—a feeling as of massive, invisible forces in delicate, temporary balance. For a second his mind recoiled.

Then it cleared. For one fleeting, but timeless, moment he saw, that which was in the room—and that which was not.

What his eyes registered were like two versions of the same scene, superimposed on each other, but at the same time distinct and separate. One was the ordinary room with Mondar seated on his chair, and all things ordinary.

The other was the same room, but filled with a difference. Here, Mondar did not sit on his chair but floated, in lotus position, a few inches above its seat cushion. Stretching out before and behind him were a succession of duplicating images, semitransparent but each clearly identifiable—and while those closest to him, before and behind him, were duplicates of himself, those farther from him wore different faces. Faces still Exotic, but of different men, different Outbonds. Before and behind him, these stretched away until they were lost to sight.

Cletus, too, he became aware, had his images in line with him. He could see those before and he was somehow conscious of those behind him. Before him was a Cletus with

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two good knees, but beyond this and two more Cletuses, were different men, bigger men. But a common thread ran through them, tying the pulses of their lives to his, and continuing back through him to a man with no left arm, on and on, through the lives of all those others behind him until it ended, at last, with a powerful old man in half-armor sitting on a white horse with a baton in hand.

Nor was this all. The room was full of forces and currents of living pressures coming from vast distances to this focal point. Like threads of golden light they wove back and forth, tying each other together, connecting some of Cletus's images with Mondar's, and even Cletus himself with Mondar, himself. The two, their forerunners and their followers, hung webbed in a tapestry of this interconnecting pattern of light, during that single moment in which Cletus's vision registered the double scene.

Then, abruptly, Mondar turned his gaze on Cletus, and both tapestry and images were gone. Only the normal room remained.

But Mondar's eyes glowed at Cletus like twin sapphires illuminated from within by a light identical in color and texture with the threads that had seemed to fill the air of the room between both men.

"Yes," said Mondar. "I knew . . . almost from the moment I first saw you in the spaceship dining lounge . . . you had potential. If it'd only been part of our philosophy to proselytize, or recruit, in the ordinary way, I'd have tried to recruit you from that minute on. Did you talk to Dow?"

Cletus considered the unlined face, the blue eyes, of the other, and slowly nodded.

"With your help," he said. "Was it actually necessary to get Melissa away, too? DeCastries and I could have talked over her head."

"I wanted him to have every advantage," Mondar said, his eyes glowing. "I wanted no doubt in your mind he'd been able to bid as high for you as he wanted to go. He did offer you a job with him, didn't he?"

"He told me," said Cletus, "that he couldn't—to an interesting madman. From which I gathered he was most eager to hire one."

"Of course he is," said Mondar. "But he wants you only for what you can do for him. He's not interested in what you could make of yourself. Cletus, do you know how we Exotics came about?"

"Yes," said Cletus. "I looked you up before I put in my request for transfer to here. The Association for the Investigation and Development of Exotic Sciences—my sources say you developed a black-magic cult of the early twenty-first century, called the Chantry Guild."

"That's right," Mondar said. "The Chantry Guild was the brainchild of a man named Walter Blunt. He was a brilliant man,

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Cletus, but like most of the people of his time, he was reacting against the fact his environment had suddenly been enlarged, from the surface of one world to the surfaces of any number of worlds spread out through light-years of interstellar space. You probably know the history of that period as well as I do—how that first, instinctive, racial fear of space beyond the solar system built up and erupted in a series of bloody social eruptions. It spawned any number of societies and cults for people attempting to adjust psychologically to feelings of vulnerability and insignificance, deep down on the unconscious level. Blunt was a fighter, an anarchist. His answer was revolution—"

"Revolution?" asked Cletus.

"Yes. Literally—revolution," Mondar answered. "Blunt wanted part of actual, objective physical reality as well—by using primitive psychic leverage. He called what he wanted to do 'creative destruction.' He called on people to '*Destruct!*' But he couldn't quite push even the intense neurotics of his time all the way over the emotional brink. And then he was deposed as head of the Guild by a young mining engineer who'd lost an arm in a mine accident—"

"Lost an arm?" said Cletus sharply. "Which arm?"

"The left—yes, I think it was the left that was gone," said Mondar. "Why?"

"Nothing," said Cletus. "Go on."

"His name was Paul Formain—"

"Fort Mayne?" Cletus interrupted a second time.

"No 't'," answered Mondar. "F-o-r-m-a-i-n." He spelled it out, looking curiously at Cletus. "Something about this interests you particularly, Cletus?"

"Only the coincidences," said Cletus. "You said he had only one arm; so the right arm he had left would have been overmuscled from compensation development. And his name sounds almost like *fort mayne*, which are the words used by the Norman French to describe their policy to the conquered English after they took over England in the eleventh century. *Fort mayne*—literally, 'strong-hand'. It described a policy of using whatever force was necessary to keep the native English under control. And you say he took over the Chantry Guild, deposing this Blunt?"

"Yes . . ." Mondar frowned. "I see the coincidences, Cletus, but I don't see why they're important."

"Maybe they aren't," said Cletus. "Go on. Formain took over the Chantry Guild and started your Exotic Association?"

"He almost had to wreck the Chantry Guild to do it," said Mondar. "But he did. He changed its aim from revolution to evolution. The evolution of man, Cletus."

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"Evolution." Cletus repeated the word thoughtfully. "So, you don't think the human race is through evolving? What comes next, then?"

"We don't know, of course," said Mondar, folding his hands in his lap. "Can an ape imagine a man? But we're convinced the seeds of further evolution are alive in man, still—even if they aren't already germinating. We Exotics are dedicated to searching for those seeds, and protecting them once we've found them, so that they can flourish and grow, until evolved man is part of our community."

"Sorry." Cletus shook his head. "I'd make a poor Exotic, Mondar. I've got my own job to do."

"But this is part of your job—and your job is part of it!" Mondar leaned forward, and his hands slid apart. "There's no compulsion on our members. Each one searches, works for the future the way he thinks best. All we ask is that when the skills of anyone are needed by the community, he makes them available to it. In return the community offers him its skills to improve *him*, physically and mentally, so he can be that much more effective in his own work. You know what you can do now, Cletus. Think what you might be able to do if you could make use of all we can teach you!"

Cletus shook his head again.

"If you turn us down," said Mondar, "it signals a danger to you, Cletus. It signals an unconscious desire on your part to go the deCastries' way—to let yourself be caught up by the excitement of directly manipulating people and situations, instead of dealing with what's much more valuable, but less emotionally stimulating—the struggle with ideas to find principles that'll lift people eventually above and beyond manipulation."

Cletus laughed, a little grimly.

"Tell me," he said, "isn't it true that you Exotics won't carry or use weapons yourself, even in self-defense? And that's why you hire mercenaries like the Dorsai, or make agreements with political groups like the Alliance, to defend yourselves?"

"Yes—but not for the reason most people think, Cletus," said Mondar, swiftly. "We haven't any moral objection to fighting. It's just that the emotions involved interfere with clear thinking; so people like myself prefer not to touch weapons. But there's no compulsion on our people on this. If you want to write your work on military tactics, or even keep and carry guns—"

"I don't think you follow me," said Cletus. "Eachan Khan told me something. You remember when you were in the command car after it overturned, earlier today, and he suggested you not let yourself be taken alive by the Neulander guerrillas—for obvious reasons? You answered that you could always die. *No man,*' you said, *'commands this body but myself.*' "

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"And you think suicide is a form of violence—"

"No," said Cletus. "I'm trying to explain to you why I'd never make an Exotic. In your calmness in the face of possible torture and the need to kill yourself, you were showing a particular form of ruthlessness. It was ruthlessness toward yourself—but that's only the back side of the coin. You Exotics are essentially ruthless toward all men. Because you're philosophers; and by and large, philosophers are ruthless people."

"Cletus!" Mondar shook his head. "Do you realize what you're saying?"

"Of course," said Cletus, quietly. "And you realize it as well as I do. The immediate teaching of philosophers may be gentle, but the theory behind their teaching is without compunction—and that's why so much bloodshed and misery has always attended the paths of their followers, who claim to live by those teachings. More blood's been spilled by the militant adherents of prophets of change than by any other group of people down through the history of man."

"No Exotic spills blood," said Mondar, softly.

"Not directly," said Cletus. "But to achieve the future you dream of, means the obliteration of the present as we know it now. You may say your aim's changed from revolution to evolution; but your goal is still the destruction of what we have now to make room for something different. You work to destroy what presently is—and that takes a ruthlessness that's not my way—that I don't agree with."

He stopped speaking. Mondar met his eyes for a long moment.

"Cletus," said Mondar at last, "can you be that sure of yourself?"

"Yes," said Cletus. "I'm afraid I can." He turned toward the door. As he reached the door and put his hand on its button, he turned back.

"Thanks all the same, Mondar," he said. "You and your Exotics may end up going my way. But I won't go yours. Good night."

He opened the door.

"Cletus," said Mondar, behind him, "if you refuse us now, you do it at your own risk. There are larger forces at work in what you want to do than I think you understand."

Cletus shook his head.

"Good night," he said again, and went out.

Back in the room where he had left Arvid, he found the big young lieutenant and told him they were leaving. As they reached the parking area together and Cletus opened the door of their aircar, the sky split open above them in a wild explosion of lightning and thunder, with raindrops sleeting down like hailstones.

They bolted for the interior of the car. The rain was icy and the few seconds of being exposed to it had left their jackets soaked and

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clinging to their shoulders. Arvid put power on the vehicle and lifted it out of the lot.

"All hell's broke loose tonight," he murmured, as they swung back across the city. Then, startled, he looked at Cletus, sitting beside him.

"Now, why did I say that?" he asked. Cletus did not answer and after a second Arvid answered himself.

"All the same," he said, half to himself, "it has."

VII

Cletus woke to the sensation that his left knee was being slowly crushed in a heavy vise. The dull, unyielding pain of it had roused him from his sleep; and for a moment he was its captive—the sensation of pain filling the whole universe of his consciousness.

Then, practically, he took action to control the crippling sensation. Rolling over on his back, he stared up at the white ceiling seven feet above him. One by one, starting with his thigh muscles, he commanded the large muscles of his arms and legs to lose their tension and relax. He moved on to the neck and face muscles, the belly muscles, and finally into a feeling of relaxation pervading him completely.

His body was heavy and limp now. His eyes were drooping, half closed. He lay, indifferent to the faint noises from other parts of the BOQ that filtered to him. He drifted, sliding gently away, like a man lax upon the surface of some warm ocean.

The state of relaxation he had induced had already muffled the dull-jawed relentless grip of the pain upon his knee. Slowly, so as not to reawaken an alertness that would allow tension to form in him once more, he propped the pillow behind and pulled himself up in the bed. Half sitting, he folded the covers back from his left leg and looked at it.

The knee was puffed and swollen to stiffness. There was no darkness or bruise-shade of discoloration about it, but it was swollen to the point of immobility. He fastened his gaze steadily on the swollen knee; and set about the larger job of bringing it back down to normal size and movement.

Still drifting, still in that more primitive state of mind known as regression, he connected the pain response in his knee with the pain message in his mind, and began to convert the message to a mental equivalent of that same physical relaxation and peace which held his body. Drifting with it, he felt the pain message lose its color. It faded, like an instruction written in evaporating ink, until it was finally invisible.

He felt what he had earlier recognized as pain, still present in his knee. It was a sensation only, however, neither pain nor pressure but

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coequal with them both. Now that he had identified this former pain as a separate sensation-entity, he began to concentrate upon the actual physical feeling of pressure within the blood and limb, the vessels now swollen to the point of immobilizing his leg.

He formed a mental image of the vessels as they were. Then, slowly, he began to visualize them as relaxing, shrinking, returning their fluid contents to those pipe systems of the leg to which they were severally connected . . .

For perhaps as much as ten minutes there was no visible response from the knee area. Then gradually he began to be aware of a yielding of the pressure and a sensation of faint warmth within the knee itself. Within another five minutes it was possible to see that the swelling was actually going down. Ten minutes later, he had a knee that was still swollen, but which he could bend at a good sixty degree angle. It was good enough. He swung good leg and bad out of bed together, got up and began to dress.

He was just buckling on a weapons belt over his jungle suit, when there was a knock at his door. Cletus glanced over at the clock beside his bed. It showed eight minutes before five a.m.

"Come on in," he said.

Arvid stepped into the room.

"You're up early, Arv," Cletus said, snapping the weapons belt shut, and reaching for his sidearm on top of the chest of drawers beside him. He slid the weapon into its holster, hanging from the belt. "Did you get the things I wanted?"

"Yes, sir," said Arvid, "the loudspeaker horn and the singleton mines are tucked away out of sight in duffle packs. I couldn't get the rifle into a pack; but it's with the packs, clipped on to the electric horse you asked for."

"And the horse, itself?"

"I've got it in the back of a courier car, outside—" Arvid hesitated. "I asked to go with you, sir, but the orders just called for you and the field officer in charge of the company. I want to tell you about him. They've given you a first lieutenant named Bill Athyer."

"And this Bill Athyer is no good, is that it?" asked Cletus, cheerfully, picking up his communications helmet, and leading the way out of the room.

"How did you know?" Arvid stared down at Cletus, following him as they went out down the long center aisle of the BOQ.

Cletus smiled back at him, limping along, but delayed his answer until they had stepped out the front door into the misty, predawn darkness where the courier car waited for Cletus. They got in, Arvid behind the controls. As the big young lieutenant sent the vehicle sliding off on its air cushion, Cletus went on. "I rather thought the general'd be giving me someone like that.

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Don't worry about it, Arv. You're going to have your hands full enough today, as it is. I want you to find office space for me and line up a staff—a warrant officer, if you can get one for office manager, a couple of clerical Tech Fives and a file clerk Tech Two with a research specialty. Can you get right to work on that?"

"Yes, sir," answered Arvid. "But I didn't know we had authority for something like that—"

"We don't, yet," said Cletus. "But I'll get it for you. You just find the premises and the people, so we know where to lay hands on them as soon as we have authorization."

"Yes, sir," said Arvid.

Arrived at the Transport Area, Cletus found his company under the command of First Lieutenant William Athyer, standing at ease in ranks, equipped, armed and apparently ready to take off. Cletus assumed that the men had had breakfast—not being the field officer in command of them, it was not up to him to see that they had; and asking Athyer about it would be impolitic, not to say insulting. Cletus descended a little stiffly from the courier car, and watched as Arvid unloaded the electric horse, with its equipment.

"Colonel Grahame?" a voice said behind him. "I'm Lieutenant Athyer, in command of this company. We're ready to take off—"

Cletus turned. Athyer was a short, dark, fairly slim man, in his mid-thirties, with a beaklike nose. A somewhat sour expression sat on his features, as if habit had made it permanent there. His speech was abrupt, even aggressive, but the words at the end of each speech tended to thin out into a whine.

". . . Now that you're finally here, sir," he added now.

The extra, unnecessary statement verged on impertinence. But Cletus ignored it, looking past Athyer's shoulder at the men behind the lieutenant. Their tanned skin and the mixture of old and new equipment and clothing about them suggested experience. But they were more silent than they should be, and Cletus had little doubt about the reason for this. To be put back under weapons and flown off into combat in the middle of Rest and Recuperation was not calculated to make soldiers happy. He looked back at Athyer.

"I imagine we'll start loading right away, then. Won't we, Lieutenant?" he said pleasantly. "Let me know where you want me."

"We're taking two atmosphere support ships for transport," growled Athyer. "I've got my top sergeant in the second. You'd better ride with me in the first, Colonel—"

He broke off to stare at the electric horse, as its overhead vanes whined into movement. Arvid had just switched its satchel turbine on,

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and the single-person vehicle had lifted into the air so that it could be moved easily under its own power to the support ship. Evidently, Athyer had not connected the horse with Cletus until this moment. In truth, it was an unlikely little contraption for such an outing—designed for spaceport inspection work, mainly, and looking like a wheelless bicycle frame suspended fore and aft from metal rods leading down from a side-by-side pair of counterrotating ducted vanes, driven by a nuclear-pack, satched turbine just below them. Cletus's cone rifle and duffel bags were hung before its saddle on the crossbar.

It was not pretty, but that was no reason for Athyer to scowl at it as he was doing.

"What's this?" he demanded.

"It's for me, Lieutenant," said Cletus, cheerfully. "My left knee's half-prosthetic, you know. I didn't want to hold you and your men up if it came to moving some place along the ground in a hurry."

"Oh? Well . . ." Athyer went on scowling. But the fact that the sentence he had begun trailed off was evidence enough that his imagination was failing him in its search for a valid excuse to forbid taking the electric horse. After all, Cletus *was* a lieutenant colonel. Athyer saved face by snapping at Arvid. "Get it on board, then! Quick, Lieutenant!"

He turned away to the business of getting the company of perhaps eighty men into the two Atmosphere Support Ships waiting on the Transport Area pad, some fifty feet distant.

The boarding of the ships went smoothly and easily. Within twenty minutes they were skimming northward over the tops of the jungle trees toward Etter's Pass—and the sky beyond the distant mountain range was beginning to grow pale with the dawn.

"What're your plans, Lieutenant?" began Cletus, as he and Athyer sat facing each other in the small, forward passenger's compartment of the ship.

"I'll get the map," said Athyer, ducking away resentfully from Cletus's gaze. He dug into the metal command case on the floor between his boots, and came up with a terrain map of the Exotic side of the mountains around Etter's Pass. He spread the map out on the combined knees of himself and Cletus.

"I'll set up a picket line like this," Athyer said, his finger tracing an arc through the jungle on the mountain slopes below the pass, "about three hundred yards down. Also, place a couple of reserve groups high up, behind the picket line on either side of the pass mouth. When the Neulanders get through the pass and far enough down the trail to hit the lower curve of the picket line, the reserve

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groups can move in behind them and we'll have them surrounded. That is, if any guerrillas do come through the pass."

Cletus ignored the concluding statement of the lieutenant's explanation. "What if the guerrillas don't come straight down the trail?" Cletus asked. "What if they turn either right or left directly into the jungle the minute that they're on this side of the mountains?"

Athyer stared at Cletus at first blankly, and then resentfully, like a student who has been asked an exam question he considers unfair.

"My support groups can fall back ahead of them," he said at last, ungraciously, "alerting the rest of the picket line as they go. The other men can still close in behind them. Anyway, we've got them enclosed."

"What's visibility in the jungle around there, Lieutenant?" asked Cletus.

"Fifteen—twenty meters," Athyer answered.

"Then the rest of your picket line is going to have some trouble keeping position and moving upslope at an angle to enclose guerrillas who're probably already beginning to split up into groups of two and three and spread out for their trek to the coast. Don't you think?"

"We'll just have to do the best we can," said Athyer, sullenly.

"But there're other possibilities," said Cletus. He pointed to the map. "The guerrillas have the Whey River to their right as they come out of the pass, and the Blue River to their left; and both rivers meet down at Two Rivers Town, below. Which means that any way the Neulanders turn, they've got to cross water. Look at the map. There're only three good crossing spots above town on the Blue River, and only two on the Whey—unless they'd want to go right through the town itself, which they wouldn't. So, any or all of those five crossings could be used."

Cletus paused, waiting for the junior officer to pick up on the unspoken suggestion. But Athyer was obviously one of those men who need their opportunities spelled out for them.

"The point is, Lieutenant," Cletus said, "why try to catch these guerrillas in the jungle up around the pass, where they've got all sorts of opportunities to slip past you—when you simply could be waiting for them at these crossings, and catch them between you and the river?"

Athyer reluctantly bent over the map to search out the five indicated crossing points that Cletus had mentioned.

"The two Whey River crossings," Cletus went on, "are closest to the pass. Also they're on the most direct route to the coast. Any

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guerrillas taking the passes on the Blue River are going to have to circle wide to get safely around the town below. The Neulanders know you know this. So I think it's a fairly safe bet, that they'll count on your trying to stop them—if they count on anyone trying to stop them at all—at those two passes. So they'll probably merely feint in that direction and make their real crossing at these three other fords over on the Blue River."

Athyer stared at Cletus's finger as it moved around from point to point on the map in time with his words. His face set, stubbornly.

"No, no, Colonel," he said, when Cletus had finished. "You don't know these Neulanders the way I do. In the first place, why should they expect us to be waiting for them, anyway? In the second place, they're just not that cute. They'll come through the pass, break up into twos and threes going through the jungle and join up again at one, maybe two, of the Whey River crossings."

"I wouldn't think so—" Cletus was beginning. But this time, Athyer literally cut him short, with growing confidence.

"Take my word for it, Colonel!" he said. "It's those two points on the Whey River they'll be crossing at."

He almost rubbed his hands together with satisfaction.

". . . And that's where I'll snap them up!" he went on. "I'll take the lower crossing with half the men, and my top sergeant can take the upper crossing with most of the rest. Put a few men behind them to cut off their retreat, and I'll bag myself a nice catch of guerrillas."

"You're the field officer in command," said Cletus. "So I don't want to argue with you. Still, General Traynor did say that I was to offer you my advice; and I'd think you'd want to play safe, over on the Blue. If it was up to me—"

Cletus let his voice trail off. The lieutenant's hands, with the map already half folded, slowed and ceased their movement. Cletus, looking at the other's lowered head, could almost see the gears turning over inside it. By this time Athyer had left all doubts behind about his own military judgment. Still—situations involving generals and colonels were always touchy for a lieutenant to be involved in, no matter who seemed to be holding all the high cards.

"I couldn't spare more than a squad, under a corporal," muttered Athyer to the map, at last. He hesitated, plainly thinking. Then he lifted his head and there was a craftiness in his eyes. "It's your suggestion, Colonel. Maybe—if you'd like to take the responsibility for diverting part of my force over to the Blue—?"

"Why, I'd be perfectly willing to, of course," said Cletus. "But as you pointed out, I'm not a field officer, and I can't very well take

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command of troops under combat conditions—"

Athyer grinned.

"Oh, that!" he said. "We don't stick right with every line in the book out here, Colonel. I'll simply give the corporal in charge of the squad, orders he's to do what you say."

"What I say? You mean—*exactly* what I say?" asked Cletus.

"Exactly," said Athyer. "There's an authority for that sort of thing in emergencies, you know. As commanding officer of an isolated unit I can make emergency use of any and all military personnel in whatever manner I feel is necessary. I'll tell the corporal I've temporarily allowed you status as a field officer; and, of course, your rank applies."

"But if the guerrillas do come through the Blue River crossings," said Cletus, "I'll only have a squad."

"They won't, Colonel," said Athyer, finishing his folding of the map with a flourish. "They won't. But if a few stray Neulanders *should* show up—why, use your best judgment. An expert on tactics like yourself, sir, ought to be able to handle any little situation like that, that's liable to turn up."

Leaving the barely concealed sneer to linger in the air behind him, he rose and went back with the map into the rear passenger compartment where the soldiers of half his command were riding.

The support ship in which they were traveling set Cletus down with his squad at the uppermost of the three crossing points on the Blue River, and took off into the dawn shadows which still obscured this western slope of the mountain range dividing Bakhalla from Neuland. Athyer had picked a weedy, nineteen-year-old corporal named Ed Jarnki and six men to be the force Cletus would command. The moment they were deshipped, the seven dropped automatically to earth, propping their backs comfortably against nearby tree trunks and rocks that protruded from the unbroken green ferny carpet of the jungle floor. They were in a little clearing surrounded by tall trees, that verged on a four-foot bank over the near edge of the river; and they gazed with some curiosity at Cletus as he turned to face them.

He said nothing. He only gazed back. After a second, Jarnki, the corporal, scrambled to his feet. One after the other, the rest of the men rose also; until they all stood facing Cletus, in a ragged line, half at attention.

Cletus smiled.

He seemed a different man entirely, now, from the officer the seven had glimpsed earlier as they were boarding and descending from the Support Ship. The good humor had not gone from his face. But in addition, now, there was something powerful, something steady and intense, about the way

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he looked at them. So that a sort of human electricity flowed from him to them and set all their nerves on edge, in spite of themselves.

"That's better," said Cletus. Even his voice had changed. "All right, you're the men who're going to win the day for everyone, up here at Etter's Pass. And, if you follow orders properly, you'll do it without so much as skinning your knuckles, or working up a sweat."

VIII

They stared at him.

"Sir?" said Jarnki, after a moment.

"Yes, Corporal?" said Cletus.

"Sir . . . I don't understand what you mean—" Jarnki got it out, after a second's struggle.

"I mean you're going to capture a lot of Neulanders," said Cletus, "and without getting yourselves hurt in the process." He waited while Jarnki opened his mouth a second time, and then slowly closed it again. "Well? That answer your question, Corporal?"

"Yes, sir."

Jarnki subsided. But his eyes, and the eyes of the rest of the men rested on Cletus with a suspicion amounting to fear.

"Then we'll get busy," said Cletus.

He proceeded to post the men—one across the shallow ford of the river, which here swung in a lazy curve past the clearing, two men down below the bank on each side of the clearing, and the four remaining in treetop positions strung out away from the river and upslope of the direction from which any guerrillas crossing the ford would come.

The last man he posted was Jarnki.

"Don't worry, Corporal," he said, hovering on the electric horse in mid-air a few feet from where Jarnki swayed in the treetop, clutching his cone rifle, "you'll find the Neulanders won't keep you waiting long. When you see them, give them a few cones from here and then get down on the ground where you won't get hit. You've been shot at before, haven't you?"

Jarnki nodded. His face was a little pale, and his position in a crotch of the smooth-barked variform Earth oak he perched in was somewhat too cramped to be comfortable.

"Yes, sir," he said. His tone left a great deal more unsaid.

"But it was under sensible conditions with the rest of the men in your platoon, or company, all around you, wasn't it?" said Cletus. "Don't let the difference shake you, Corporal. It won't matter once the firing starts. I'm going to check the two lower crossings. I'll be back before long."

He swung the electric horse away from the tree and headed downriver.

The vehicle he rode was almost

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silent in its operation, producing nothing much more than the kind of hum a room exhaust fan made. Under conditions of normal quiet it could be heard for perhaps fifteen meters. But this upland Kultan jungle was busy with the sounds of native birds and animals. Among these was a cry like the sound of an ax, striking wood, that sounded at intervals; and another sound that resembled heavy snoring, that would go on for several seconds, only to break off, pause, and then begin again. But most of the wood-life noises were simply screams, of different pitches and volumes, and musical character.

Altogether these made an unpredictable pattern of sound, among which the low hum of the electric horse could easily be lost to ears not specifically listening for it—such as the ears of a guerrilla from Neuland who was both probably unfamiliar with the noise and not expecting it here, in any case.

Cletus flew downriver and checked both the lower crossings, finding them empty of all human movement. He turned from the lowest crossing to move through mid-air into the jungle from the river, upslope, in the direction of the pass. With luck, he thought, any group headed toward the lowest crossing would be hurrying to get there, since they had the longest distance to cover if several crossings were being used. Undoubtedly a rendezvous point and time would have been set up for all groups on the far side of the river.

He drifted forward just under treetop level, some forty to sixty meters above the ground, at a speed of not more than six kilometers per hour. Below him, the upland jungle flora showed less of the yellow veining than there had been in the greenery near the shuttleboat landing pad, but the threads of scarlet ran everywhere; even through the outsize leaves of the variform Earth trees—oak, maple and ash—with which Kultis had been seeded twenty years back.

The Earth flora had taken more strongly in these higher altitudes. But there was still a majority of the native plants and trees, from fern-like clumps reaching ten meters into the air, to a sprawling tree-type with purple fruits that were perfectly edible but exhaled a faint sickening scent through their furry skins as they ripened.

Cletus was about eight hundred meters away from the river crossing before he spotted his first sign of movement, a waving of fern-tops below him. He checked his forward movement and drifted downwards.

A second later the foreshortened figure of a man in a brown-and-green splashed jungle suit moved into sight from under the fern.

The infiltrator was unequipped except for the pack on his back, a soft camouflage-cloth cap on his

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head, and the pellet-gun sporting firearm he carried by its strap over his right shoulder. This was to be expected where the guerrillas were concerned. The convention that had grown up on the newer worlds in fifty years of intercolony disputes was that unless a man carried military weaponry or equipment, he was subject only to civil law. And civil law had to prove damage to property, life or limb before any action could be taken against an armed man, even from another colony. A guerrilla caught with nothing but a sporting gun was usually only deported or interned. One with any kind of military equipment, however—even as little as a military issue nail file—could be taken by the military courts who usually adjudged him a saboteur and condemned him to prison, or death. If this man below him was typical of the infiltrators in his group, then Jarnki and his men with their cone rifles would have a massive advantage in weapons to make up for their scarcity of numbers. Which was a relief.

Cletus continued to watch the man for several minutes. He was making his way through the jungle with no real regard for silence or cover. As soon as Cletus had a line of march estimated for this individual, he turned off to one side to locate the other members of the same guerrilla force.

The rapidly rising sun, burning through the sparse leaves at treetop level, heated the back of Cletus's neck. He was sweating from his armpits all across his chest and back under his jungle suit, and his knee was threatening to revive its ache once more. He took a moment out to force his muscles to relax, and push the knee discomfort from him. There was not time for that—not yet. He went back to searching the jungle for more guerrillas.

Almost immediately, he found the second man, moving along parallel to and perhaps thirty meters from the infiltrator Cletus had spotted first. Cletus continued on. Within the next twenty minutes he ranged out to both ends of the skirmish line that was pushing through the jungle below him, and counted twenty men moving abreast over a front perhaps three hundred meters in width. If the Neulanders had split their forces equally between the three crossings, which would be only elementary military precaution, that would mean an infiltration force of sixty men. Sixty men, assuming they lost something like twenty percent of their group's strength in getting through the jungle from here to the coast, would leave about forty-eight men available for whatever assault the Neulanders planned to celebrate deCastries's visit.

Forty-eight men could do a lot in the way of taking over and holding the small coastal fishing village. But a good deal more could be done with double that number. Per-

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haps there was a second skirmish line behind the first.

Cletus turned the electric horse in mid-air and drifted it back under the treetops behind the man he had just spotted advancing. Sure enough, about eighty meters back, he discovered a second skirmish line—this time with fifteen men in it, including at least a couple who looked like officers, in that they carried more in the way of communication and other equipment about them and wore sidearms rather than rifles. Cletus turned the electric horse about and slid quietly through the air just below the treetops back toward the outside lower end of the approaching skirmish line. He located it, and saw that—as he had expected—the guerrillas were already beginning to close up so as to come into the crossing point together. Having estimated the line along which their lower edge would be drawing in, he went ahead on the electric horse, stopping to plant singleton personnel mines against the trunks of trees not more than four inches thick at intervals of about twenty meters along the way. He planted the last of these right at the water's edge, about twenty meters below the crossing. Then he swooped back to make contact with the end of the second skirmish line.

He found the end of the line just coming level with the first mine he had planted, the end man some ten meters away from it in the jungle. Cletus swooped out and around to come up behind the center of the line. Careful not to approach any closer than twenty meters, he halted the electric horse, unlimbered his rifle and sprayed a long burst up and down the line through about a sixty-degree angle.

The sound of a cone rifle firing was not the sort of noise that went unnoticed. The tiny, self-propelled cones, leaving the muzzle of the rifle at relatively low velocity but accelerating as they went, whistled piercingly through the air, until their passage was concluded by the dull, abrupt thud of the impact explosion that ended their career. A man not in body armor, as these guerrillas were not, could be torn in half by one of those explosions—so it was no wonder that for a second after the sound of his firing had ceased, there was utter silence in the jungle. Even the native birds and beasts were still. Then, somewhat laggardly but bravely enough, from immediately in front of Cletus and all up and down the invisible skirmish line of the infiltrators pellet-guns began to snap back, like a chorus of sprung mousetraps.

The firing was blind. The pellets, zipping through the leaves of the trees about Cletus like so many hailstones, went wide. But there were an uncomfortable number of them. Cletus had already flung the electric horse about and was put-

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ting distance between himself and those who were shooting. Fifty meters back, he turned once more around the downriver end of the line and reached for the remote trigger that set off the first of his singleton personnel mines.

Up ahead of him and to his left, there was a single loud explosion.

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A tree—the tree to which the land mine had been stuck—leaned like a sick giant among its fellows and slowly at first, then faster, came toppling down among the underbrush.

By now, the jungle was alive with sound. The guerrillas were apparently firing in every direction, because the native wildlife was screaming at the tops of their lungs. Cletus moved in at an angle to the end of the line, fired another long burst from his weapon, and quickly moved up level with his second mine.

The heavy vegetation of the jungle hid the actions of the individual guerrillas. But they were shouting to each other now; and this, as well as the wildlife sounds gave Cletus a rough idea of what was going on. Clearly, they were doing the instinctive, if not exactly the militarily wise, thing. They were beginning to draw together for mutual self-support. Cletus gave them five minutes in which to get well clumped, so that what had been two spread-out skirmish lines was now a single group of thirty-five individuals within a circle of jungle no more than fifty meters in diameter.

Then he swung around to the rear of this once more, set off his second singleton mine ahead of them and once more commenced firing into them from behind.

This time he evoked a veritable cricket-chorus of answering pellet-gun fire. What sounded like all thirty-five weapons snapping at him at once, in every direction. The nearby Kultan wildlife burst out in a cacophony of protest; and the toppling of a tree cut down by a third singleton mine added its crash to the general uproar, just as that firing began to slacken off. By this time, Cletus was once more around behind his line of remaining unfired mines, downriver from the guerrillas.

He waited.

After a few minutes commands were shouted and the guerrilla firing ceased. Cletus did not have to see into the center of the hundred-meter wide area to know that the officers among the infiltrators were talking over the situation they had encountered. The question in their minds would be whether the ex-

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plosions and cone-rifle firing they had heard had been evoked from some small patrol that just happened to be in this area; or whether they had—against all normal expectations and reason—run head on into a large enemy force set here directly to bar their route to the coast. Cletus let them talk it over.

The obvious move by a group such as these guerrillas in a situation such as this was to sit tight and send out scouts. The infiltrators were by this time less than eight hundred meters from the river's edge clearing of the crossing point and scouts would easily discover that the point was actually undefended. Which would not be good. Cletus set off a couple more of his mines and commenced firing himself upon the downriver side of the guerrilla area. Immediately the guerrillas answered.

But then this fire, too, began to dwindle and become more sporadic, until there was only a single gun snapping from moment to moment. When it, at last, fell silent, Cletus took the electric horse up and swung wide, away from the river into a position about five hundred meters upriver. Here he hovered, and waited.

Sure enough, within a very few minutes, he was able to make out movement in the jungle. Men were coming toward him, cautiously, and once more spread out in a skirmish line. The Neulander guerrillas, having encountered renewed evidence of what they thought was at least a sizable force at the lowest crossing, had chosen discretion over valor. They were withdrawing to the next higher crossing, where either their passage would not be barred or they would have the comfort of joining forces with that other group of their force which had been sent to cross at the middle ford.

Cletus swung wide once more, circled in, away from the river, and headed upstream toward the second crossing. As he approached this general area, he slowed the electric horse to minimize the noise of its ducted fans, and crept along, high up, just under treetop level.

Shortly he made contact with a second group of the guerrilla force, also in two skirmish lines, but a good nine hundred meters yet from the middle of the three river crossings. He paused long enough to plant another row of singleton personnel mines on trees in a line just downriver from the crossing, then, slipped upriver again.

When he reached the area inland of the ford highest up on the Blue River where Jarnki and the others waited, he found that the third group of guerrillas, approaching this highest crossing, were not on schedule with the two other groups below. This upper group was already almost upon the crossing—less than a hundred and fifty meters from it.

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There was no time here for a careful reconnaissance before acting. Cletus swept across thirty meters in front of their first skirmish line, firing one long whistling burst from his cone rifle when he judged he was opposite the line's center.

Safely beyond the further end of it, he waited until the snapping of answering fire from the guerrillas had died down, and then slipped back across their front once more, this time pausing to plant four singleton mines in their path. Once he was back beyond the downriver end of their lines, he set off a couple of these mines and began firing again.

The results were gratifying. The guerrillas opened up all along their front. Not only that; but, fortunately the men he had left at the crossing, spooked by the guerrilla firing, began instinctively returning it with their cone rifles. The result, as far as the ear could tell, was a very good impression of two fair-sized groups in a fire fight.

There was only one thing wrong with these additional sound effects Cletus was getting from his own men. One of the heavily whistling guns belonged to Jarnki; and evidently from the sounds of it, the corporal was on the ground within fifteen meters of the front guerrilla lines—up where the exchange of shots could well prove lethal to him.

Cletus was tempted to swear, but stifled the urge. He pulsed a sharp message over his throat mike communicator to Jarnki to fall back. There was no response, and Jarnki's weapon went on speaking. This time Cletus did swear. Dropping his electric horse to just above the ground, he threaded the vehicle through the jungle cover up to right behind the corporal's position, led to it easily by the sound of Jarnki's firing.

The young soldier was lying in prone position, legs spread out, his rifle barrel resting upon a rotting tree trunk, firing steadily. His face was as pale as a face of a man who has already lost half the blood in his body; but there was not a mark on him. Cletus had to dismount from the horse and shake the narrow shoulder above the whistling rifle, before Jarnki would wake to the fact that anyone was beside him.

When he did become conscious of Cletus's presence, the convulsive reaction sent him scrambling to his feet like a startled cat. Cletus held him down against the ground with one hand and jerked the thumb of the other toward the crossing behind them.

"Fall back!" whispered Cletus harshly.

Jarnki stared, nodded, turned about and began to scramble on hands and legs toward the crossing. Cletus remounted the electric horse. Swinging wide again, he approached the guerrillas from their

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opposite side to ascertain their reaction to these unexpected sounds of opposition.

He was forced, in the end, to dismount from the electric horse and wriggle forward on his stomach after all, for perhaps ten meters, to get close enough to understand some of what was being said. Happily, what he heard was what he had hoped to hear. This group, like the group farthest down river, had decided to stop and talk over these sounds of an unexpected opposition.

Painfully, Cletus wriggled back to the electric horse, mounted it, and flew a wide curve once more back to the crossing itself. He reached it just as Jarnki, by this time back on his feet, also reached it. Jarnki had recovered some of his color, but he looked at Cletus apprehensively, as if expecting a tongue-lashing. Instead, Cletus grinned at him.

"You're a brave man, Corporal," Cletus said. "You just have to remember that we like to keep our brave men alive, if possible. They're more useful that way."

Jarnki blinked. He grinned uncertainly.

Cletus turned back to the electric horse and took one of his boxes of singleton mines. He handed it to Jarnki.

"Plant these between fifty and eighty meters out," Cletus said. "Just be sure you don't take any chances on getting shot while you're doing it. Then hang back in front of those Neulanders as they advance; and keep them busy, both with the mines and with your weapon. Your job is to slow those Neulanders down until I can get back up here to help you. At a guess, that's going to be anywhere from another forty-five minutes to an hour and a half. Do you think you can do it?"

"We'll do it," said Jarnki.

"I'll leave it to you, then," said Cletus.

He mounted the electric horse, swung out over the river and headed down to make contact with the group of guerrillas moving toward the middle ford.

They were doing just that when he found them. The Neulanders were by this time fairly close to the middle crossing, and right in among his mines. There was no time like the present—Cletus set them off, and compounded the situation by cruising the Neulander rear and firing a number of bursts at random into them.

They returned his fire immediately; but, shortly after that their return shooting became sporadic, and ceased. The silence that followed lengthened and lengthened. When there had been no shots for five minutes, Cletus circled downriver with the electric horse and came up behind where the middle-crossing group had been when it was firing back at him.

They were not there; and, fol-

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lowing cautiously just under treetop level, he soon caught up with them. They were headed upriver, and their numbers seemed to have doubled. Clearly, the group from the lower crossing had joined up with them and with common consent both groups were now headed for the highest crossing and a reunion with the group scheduled to cross there.

It was as he had expected. These infiltrators were saboteurs, rather than soldiers. They would have been strictly ordered to avoid military action along the way to their destination if it was at all possible to avoid it. He followed them carefully until they were almost in contact with the group of their fellows pinned down at the highest crossing, and then swung out over the river to reconnoiter the situation at that crossing.

He came in from above and cautiously explored the situation of the upper guerrilla group. They were strung out in a ragged semicircle the ends of which did not quite reach the river banks some sixty meters above and thirty meters below the crossing. They were laying down fire but making no real effort to fight their way across the river—as he listened, the sound of their firing dwindled and there was a good deal of shouting back and forth as the two groups from downriver joined them.

Hovering above ground level, Cletus produced a snooper mike from the equipment bar of the horse and slipped its earphone to his right ear. He swung the snooper barrel, scanning the undergrowth, but the only conversations he could pick up were by ordinary members of the guerrilla force, none by officers discussing the action they would take next. This was unfortunate. If he had been up to crawling fifty meters or so to make a personal reconnaissance—but he was not, and there was no point considering it. Reconnaissance on the electric horse would be too risky. There remained the business of putting himself in the shoes of the guerrilla force commander and trying to second-guess the man's thoughts. Cletus half closed his eyes, relaxing in the same fashion as he had relaxed that morning in order to conquer the pain of his knee. Eyelids drooping, slumping bonelessly in the saddle of the horse, he let his mind go free.

For a long moment there was nothing but a random sequence of thoughts flowing across the surface of his consciousness. Then his imagination steadied down, and a concept began to form. He felt himself, as if no longer sitting on the seat of the electric horse, but standing on the soft, spongy surface of the jungle floor, his camouflaged suit glued to his body by sweat as he squinted up at the sun, which was already past its zenith, moving into afternoon. An irritation of combined frustration and

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apprehension filled his mind. He looked back down at the circle of guerrilla under-officers gathered about him and realized that he had to make an immediate decision. Two-thirds of his force had already failed to get across the Blue River at the time and places they were supposed to cross. Now, already behind schedule, he was faced with the last opportunity for a crossing—but also with the opposition of enemy forces, in what strength he did not know.

Clearly, at least one thing was true. The infiltration of this group he commanded had turned out to be not the secret from the Exotics that it had been expected it would be. To that extent, his mission was already a failure. If the Exotics had a force here to oppose him, what kind of opposition could he expect on the way to the coast?

Clearly, the mission now stood little or no chance of success. Sensibly, it should be abandoned. But could he turn back through the paths now, without some excuse to give his superiors so that he would not be accused of abandoning the mission for insufficient reason?

Clearly, he could not. Plainly, he would have to make an attempt to fight his way across the river, and just hope that the Exotic forces would oppose him hard enough so that he would have an excuse to retreat . . .

Cletus returned to himself, opened his eyes and straightened up in the saddle once more. Lifting the electric horse up just under treetop level once more, he tossed three singleton mines at different angles toward the guerrilla position, and then set them off in quick succession.

Immediately, also, he opened up with both his rifle and sidearm, holding the rifle tucked against his side and firing it with his right hand, while firing his sidearm with the left.

From the crossing, and from the two other sides of the guerrilla position, came the sound of the gun fire of his soldiers upon the Neulanders.

Within seconds, the guerrilla force was laying down answering fire. The racket was the worse to disturb the jungle so far this day. Cletus waited until it began to die down slightly, so that he could be heard. Then he took the loudspeaker horn from the crossbar of the electric horse. He lifted the horn to his lips and turned it on. His amplified voice thundered through the jungle.

"CEASE FIRING! CEASE FIRING! ALL ALLIANCE FORCES CEASE FIRING!"

The cone rifles of the men under Cletus's command fell silent about the guerrilla area. Gradually, the answering voice of the guerrilla weapons also dwindled and silence filled the jungle again. Cletus spoke once more through the loudspeaker horn.

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"ATTENTION NEULANDERS! ATTENTION NEULANDERS! YOU ARE COMPLETELY SURROUNDED BY MEMBERS OF THE ALLIANCE EXPEDITIONARY FORCE TO BAKHALLA! FURTHER RESISTANCE CAN ONLY END IN YOUR BEING WIPED OUT. THOSE WHO WISH TO SURRENDER WILL BE GIVEN HONORABLE TREATMENT IN ACCORDANCE WITH THE ESTABLISHED RULES GOVERNING THE CARE OF PRISONERS OF WAR. THIS IS THE COMMANDER OF THE ALLIANCE FORCE SPEAKING. MY MEN WILL HOLD THEIR FIRE FOR THREE MINUTES, DURING WHICH YOU WILL BE GIVEN A CHANCE TO SURRENDER. THOSE WISHING TO SURRENDER MUST DIVEST THEMSELVES OF ALL WEAPONS AND WALK INTO THE CLEARING AT THE CROSSING IN PLAIN SIGHT WITH THEIR HANDS CLASPED ON TOP OF THEIR HEAD. I REPEAT, THOSE WISHING TO SURRENDER MUST DIVEST THEMSELVES OF ALL WEAPONS AND WALK INTO PLAIN SIGHT IN THE CLEARING AT THE CROSSING WITH THEIR HANDS CLASPED ON TOP OF THEIR HEAD. YOU HAVE THREE MINUTES TO SURRENDER IN THIS FASHION STARTING FROM WHEN I SAY 'NOW'."

Cletus paused for a moment, then added.

"ANY MEMBERS OF THE INVADING FORCE WHO HAVE NOT SURRENDERED BY THAT TIME WILL BE CONSIDERED AS INTENDING TO CONTINUE RESISTANCE, AND MEMBERS OF THE ALLIANCE FORCE ARE INSTRUCTED TO OPEN FIRE UPON SUCH INDIVIDUALS ON SIGHT. THE THREE MINUTES IN WHICH TO SURRENDER WILL NOW BEGIN. NOW!"

He clicked off the loudspeaker horn, replaced it on the horse, and quickly swung toward the river, out and around to where he had a view of the clearing without being visible himself. For a long moment nothing happened. Then, there was a rustle of leaves, and a man in a Neulander camouflage suit, his hands clasped over his head and some jungle grass still stuck in his bushy beard, stepped into the clearing. Even from where Cletus watched, the whites of the guerrilla's eyes were visible and he looked about him apprehensively. He came forward hesitantly until he was roughly in the center of the clearing, then stopped, looking about him, his hands still clasped on top of his head.

A moment later, another guerrilla appeared in the clearing; and

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suddenly they were coming from every direction.

Cletus sat watching and counting for a couple of minutes. By the end of that time, forty-three men had entered the clearing to surrender. Cletus nodded, thoughtfully. Forty-three men out of a total of three groups of thirty guerrillas—or ninety—all told. It was as he had expected.

He glanced down along the river bank to the place, less than ten meters from him, where Jarnki crouched with the two other men who had been left here to defend this crossing and were now covering the growing mass of prisoners.

"Ed," Cletus transmit-pulsed at the young corporal. "Ed, look to your right."

Jarnki looked sharply to his right, and jerked a little in startlement at seeing Cletus so close. Cletus beckoned to him. Cautiously, still crouching low to keep under the ridge of the river bank, Jarnki ran up to where Cletus hovered on the electric horse, a few feet off the ground.

As Jarnki came up, Cletus set the vehicle down on the ground and, safely screened from the clearing by the jungle bushes before him, stepped stiffly off the horse and stretched himself gratefully.

"Sir?" said Jarnki, inquiringly.

"I want you to hear this," said Cletus. He turned to the horse again and set its communications unit for the channel number of Lieutenant Athyer, over on the Blue River.

"Lieutenant," he pulse-messaged, "this is Colonel Grahame."

There was a short pause, and then the reply came, crackling not only in the earphones plug in Cletus's ear but over the small speaker built into the electric horse, which Cletus had just turned on.

"Colonel?" said Athyer. "What is it?"

"It seems the Neulander guerrillas attempted to infiltrate across the Blue River crossings here, after all," Cletus said. "We were lucky and managed to capture about half of them—"

"Guerrillas? Captured? Half—" Athyer's voice faltered in the earphones and over the speaker.

"But that isn't why I messaged," Cletus went on. "The other half got away from us. They'll be headed back toward the pass, to escape back into Neuland. But you're closer to the pass than they are. If you get there with even half your men, you ought to be able to round up the rest of them without any trouble."

"Trouble? Look . . . I . . . how do I know the situation's the way you say it is? I—"

"Lieutenant," said Cletus, and for the first time he put a slight emphasis on the word, "I just told you. We've captured half their force, here at the upper crossing on the Blue."

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"Well . . . yes . . . Colonel. I understand that. But—"

Cletus cut him short.

"Then get going, Lieutenant," he said. "If you don't move fast, you may miss them."

"Yes, sir. Of course. I'll message you again, shortly, Colonel. Maybe you'd better hold your prisoners there, until they can be picked up by support ship. Uh, some of them might get away if you try to move them through the jungle with only your men." Athyer's voice was strengthening as he got control of himself. But there was a bitter note in it. Clearly the implications of the capture of a large group of enemy infiltrators by a desk-bound theoretician when Athyer himself was the sole field officer in command of the capturing force, was beginning to register on him. There was little hope that General Traynor would overlook this kind of a failure on his part.

His voice was grim as he went on.

"Do you need a medic?" he asked. "I can spare you one of the two I've got here and send him right over by one of the Support Ships, now that secrecy's out and the Neulanders know we're here."

"Thanks, Lieutenant. Yes, we could use a medic," said Cletus. "Good luck with the rest of them."

"Thanks. Out, sir," said Athyer.

"Out," replied Cletus.

He cut transmission, stepped away from the electric horse and lowered himself stiffly to the ground into a sitting position with his back to a nearby boulder.

"Sir?" said Jarnki. "What do we need a medic for? None of the men got hurt. You don't mean you need one, sir . . .?"

"Me," said Cletus.

He extended his left leg, reached down and took his combat knife from its boot sheath. With its blade, he ripped open his left pants leg, from above the knee to the top of his boot. The knee he revealed was swollen beyond reason and not pretty to look at. He reached for the first-aid kit at his belt and took out a spray hypo. He put the blunt nose of the spray against his wrist and pulled the trigger. The cool shock of the spray being driven through his skin directly into his bloodstream was like the touch of a finger of peace.

Jarnki, white-faced, stared at the knee.

Cletus leaned back gratefully against the boulder, and let the soft waves of the narcotic begin to fold him into unconsciousness. Then darkness claimed him.

To be continued

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Rescue Squad for Ahmed

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The Psi squad's leader had got himself into a serious spot in the isolated Arab colony of New York City—and getting him out again was simple . . . just do what should never be done!

KATHERINE MACLEAN

Illustrated by Kelly Freas

It was too early for Statistics but I got the dispatcher on the phone. He was awake, but sounded sleepy. He said he could get the Statistics computer to print out a report.

It was 7:00 a.m. and the birds in the greenbelt trees were still twittering about waking up. Sunshine was bright and pink along the tops of the buildings. Cool shadows and some mist still lingered in the canyon streets of westside New York. I left the phone booth and crossed the street to sit in the grass of the street greenbelt. I leaned back against a tree and looked up, while a bus passed. There were no cars going by. There had been no cars allowed in the city for fifteen years. The peace got inside my head.

The phone started ringing. I crossed the street and got back into the booth. "George Sanford here," I yawned. The phone booth was too small and I was too big. I opened the door and listened to the bird sounds.

"Your report just came over from Statistics," said the dispatcher's voice. "Computer-printout, one year deviation from norm in rates on unprovoked minor and major violence, blocks between 23rd and 21st Streets and two blocks each side of Wilmot Street, right?"

"Right." In two weeks I'd learned to talk like a cop. "Something like that, anyhow. I want to check out a kind of extra amount of halfway violence sort of. Like thinking of killing, not doing it."

"Um-m-m, a few cases of violence, mostly threats and attacks that don't injure. Students throwing paint on the teachers, or tearing their clothes at the High School. A lot of adult vandalism."

"What kind of vandalism? Read details."

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He started to read in a drone. "Displaced personal violence, Type Two: Curtains and pictures pulled down, or knife-slashed. Displaced violence, Type Three: Pictures of Human figures defaced with crayon or marking pencil, slash lines or x crosses. Displaced violence, Type Four: Drawings of bloody swords, knives, axes." He stopped droning and asked in a normal cop voice, "Need more?"

"It's reaching me," I said. "I'm getting into the viewpoint. Read off the details on the attacks, give it slowly." I was feeling violent already.

"What for? What are you trying to do?"

"I'm trying to tune to a suspect. Think like him." I said into the phone. "I'm standing in the area. One side is hippy flower-power territory and the other is old-folk Italiano. Quiet people, no reason to feel violent or think of blood, but I feel it whenever I walk by to have a plate of spaghetti. Someone on this block has been thinking about violence and sending out bad vibes for years. The kids go by on the way to school. I wanted to see if the vibes were reaching them. They are. They're doing a lot. I'm trying to tune to the vibes, and see if I can get into the bad guy's head."

"You all right over there?" asked the phone voice suspiciously. "You spaced out on something?"

Ahmed had always teamed with me and done the phoning before. Maybe I wasn't handling the phoning right. "Look. If you're too busy over there to read Rescue Squad bulletins, you don't know about me. Better get me somebody who isn't busy. O.K.?"

I looked out from the phone box. The sounds of the neighborhood waking up, the smell of bacon frying, a drawing of a bloody ax on an old brick slum building. The building looked ancient. The dusty look of it, and the drawing of the bloody ax on the wall made me feel like someone who liked bloody axes, someone who lived nearby.

"I ain't busy. Sorry I got you huffy," said the phone. "What do you want me to read?"

"Read the list of assaults, with details, slowly, then ask me my name in a loud voice and then my address, ask clearly and write down what I say."

"Like how?"

"Like: What's your name? Where do you live?" I said loudly. More people were walking by. One young guy went by still buttoning his shirt, hurrying to a job. Two girls sauntered by wearing bathing suits, carrying towels.

"Are you the new guy the department hired that uses a dowsing rod?" asked the dispatcher over the phone.

"No. I'll explain some other time. Just read the list." I had a

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feeling that the guy who dreamed of violence was awake and getting dressed, maybe ready to leave. I looked at a sandy-haired undersized worker hurrying by. The guy I wanted would look like that. But would I have the nerve to stop someone just because he gave out bad vibes?

No.

The dispatcher started to read in toneless drone.

"Twelve cases of students splashing ink, or paint, on four art teachers. Clothes ripped in three cases. One pedestrian, female living in Jersey City tied and threatened, and her hair shaved by an unidentified assailant approximately age twenty-two, male, brunette. Found tied, but unhurt, in a refuse can storage unit on Wilmot Street in the 22 block." The droning voice read slowly, and I imagined myself doing each of the things described. Shaving the girl's head gave me a strange violent thrill, and a fantasy of carrying a head around by its hair.

"What is your name?" asked the phone voice, suddenly clear and demanding.

"Charles Shiras."

"Where do you live?"

"Twenty-two-twenty Wilmot Street." I answered easily and then snapped back into myself, with my skin prickling into goose bumps at the image of sawing at a neck slowly with a jagged-edged old carving knife. The vibration of the sawing had been something my head *felt*.

"I got the name," said the police dispatcher at the other end, his voice droning still but almost showing a trace of interest. "Now what do I do with it?"

"Radio it to Rescue Squad to pick up Charles Shiras for custody, then take him to the medics for a flipout med check," I said.

"You aren't Charles Shiras?"

"No, I'm George Sanford." He was getting it.

I knew about the custody routine from hanging around the station house waiting for Ahmed all week. "Pick him up and check him out for psychosis. He won't pass the medics. If he calls a lawyer . . . if they don't straitjacket him . . . I'll swear out a complaint." I hoped he wouldn't pass the medics. How could I swear out a complaint? What did I legally have to complain about—a guy putting bad thoughts into my head? How much far-out guff could the regular police department take from the Rescue Squad? Arrests are supposed to be for doing something wrong. The Squad could show a lower rate of crime and accidents after picking up a troublemaker who just thought bad thoughts. That's what they said. But how did they make it legal? Arrest without a crime is against the Bill of Rights. I took a deep breath and accidentally picked up the nut's vibes—an image of shoving a person's hand into a

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toaster. The image was pain and power. Probably the man had only been sawing a slice of bread out of the middle of a stiff pumpernickel loaf, not a threat, and was now putting the thick slice into the toaster—not a hand. But his image of shoving down on a hand, and his pleasure of it gave me the shudders again. Sadism runs deep: It has primitive, strong roots. I don't even like knowing about that pleasure from hurting. It might be contagious. I might hurt someone, someday. I'm too strong. I've got to watch it.

For a while, the dispatcher was busy with some switchboard and radio calls. He came back on the phone. "You spell your name George Sandford?"

"Sanford, only one d," I said shifting from one foot to the other. My feet hurt. They're good for walking, not standing. The stereo earphones squeezed the sides of my head. Made for smaller heads than mine. An old persons' bus went by slowly with a slight hissing sound.

"Badge number?" asked the phone.

"No badge. I'm a specialist in category J." It sounded good even if it meant I couldn't pass police department tests to be hired as a cop. Strong muscles, weak head. I liked calling myself a specialist. "Specialist category J," I repeated.

For a minute the dispatcher was busy with radio calls coming and going from wrist radios and police copters, then he said, "Sanford? You still on? Hold the line, we have a call coming in for you. It will take a minute."

The police department was not so slow after all. As I stood there shifting from one foot to another the police helicopter came down out of the sky and onto the street grass belt. A man was dragged by two policemen from a nearby building. He was screaming insanities and struggling. They had the right one. He was my nut. He wouldn't pass the medics as sane.

I broke out into a cold sweat, feeling his terror and rage. It was a kind of recognition of reality. He knew it was all up now, no more pretending to be sane. He was letting it out. Letting it blast. I wanted to shut the phone booth door, but I didn't shut it. Stay cool George. Learn to feel it all and stay cool.

The police gave the man another tranquilizer shot and the angry screaming stopped. It had been a kind of fierce release for him, and now he was calm.

The door handle bent and came off in my hand. I stood with the door handle dangling from my fingers, head tilted back, watching through the glass cage as the copter buzzed away into a bright blue sky. The calm was so sudden I was still buzzing inside.

"George?" said a voice in my earphones.

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"Yeah . . . O.K." I answered stupidly. I put the handle down on the ground. It was still in the way so I kicked it into the gutter. The phone said something and reminded me it was there.

"That you, Ahmed?" I said into it. "I just nailed a nut for the department. You weren't here to help. Come over and buy me a meal on your expense account."

A girl stopped and stood near the phone, maybe waiting for me, maybe waiting for the phone. She had a flower over her left ear; meant she was looking for a boyfriend.

"Peace and oneness, little sister," I said, giving the love-commune greeting. She smiled and gave out friendly vibes.

"George," said the voice patiently in my earphones. "This is the Chief. Judd Oslow, not Ahmed, not a girl. Snap awake man."

I snapped awake. "Yes, sir. Sorry."

"George, listen closely," said the patient voice in the stereo earphones, and with my eyes shut, the stereo pick-up of wall echoes made a hearing picture of the pine-paneled room and oak desk, giving a high-pitched rebounding echo, and a vinyl old-fashioned stone floor giving low-pitched echoes of the scuff of feet. The only lack of echoes was near the phone. The big sagging bulk of the chief absorbed near echoes.

"Yes, sir, I'm listening."

"George, Ahmed is missing. Today we got his wrist radio in the mail, no return address on the box."

It was like getting kicked in the stomach. "You mean Ahmed is dead?"

"No, I mean he is missing. He's been out of touch since Wednesday, but his wrist radio is no announcement he's been murdered."

I didn't want to discuss that. When I was a kid, my friends told stories of gang and organization wars. If any organization or gang killed someone they'd send his pocket gear to his family, in a little cardboard box. For a year now, Ahmed was a cop, and a member of the Rescue Squad. Anyone might feel that the Rescue Squad was his family, and send his wrist-radio in a box—if he had been killed.

"George, are you still there? Have you heard anything from Ahmed? Any messages, any vibes?"

"No." I never get any vibes from Ahmed. When I was a kid and he was the king of the block gang I thought he was all brains, no feelings at all. Intelligence is a white light that shows you how to do anything, that cools any situation, that makes harmony out of hassle. Ahmed had a searchlight beam coming out of him.

I know a lot about feelings, my own and others. We all needed that light when we were growing up.

"He's been missing since

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Wednesday?" I repeated and heard my voice snarling. "Whydincha tell me sooner?"

"Never mind getting mad, George. We're putting you on the job to find him."

"How many people on the job? Don't lean just on me. You need lots of people. Turn the whole department on it. I don't even have any expense money."

His voice was still patient and slow. "You have to file time spent, expense money spent, and give the department a bill, remember? You haven't filed a report yet on the last two jobs."

"I don't like paperwork," I mumbled. Trying to read forms makes me feel sick. Maybe I'd do it all wrong, even if I tried. I didn't want to try.

"Get your girl friends to do it," he snapped.

I looked up but the flower girl was walking away. She looked back and waved, but kept walking. I forgot her.

"I need some money to look for Ahmed," I mumbled.

The chief sounded tired. "Give me your credit card number and bank, and I'll drop a hundred dollars into your credit card account. O.K.?"

"O.K." A rich guy is a poor guy with money. I still felt broke.

The chief read me. "You'll have the money in ten minutes, George. You're not broke: lean on the idea hard. We owe you a lot more money than that, just file your reports and keep your receipts. Make the Accounting Department happy, or they'll take this hundred out of my pay."

Maybe something would come up to help me make out reports. I got back onto the job. "What was Ahmed doing for you when you lost him?"

"There'll be a report on him waiting for you at the Madison and Fifty-third station house," said the chief and wouldn't say any more.

I walked east for a while then stopped at a vending machine for a cup of soup, pushed the soup button, and put in my credit card. I listened to the machine click and bong acceptance of my credit, and then roll the card back out and start to deliver the soup. It was a good sound and a good feeling, to have a credit card working for you.

A kid was going by.

"Hey kid, you see Ahmed the Arab recently?"

"Who?"

"A tall skinny guy with the Rescue Squad, does locating and detection. Moves fast. Eyebrows black like this." I met my fingers over my eyes in a finger frown.

"Nope." He looked at me, waiting for more questions, but I didn't have any more. Kids keep getting smaller all the time. It's hard to think of them as the same kind of people as when they were my size. They haven't changed, I have.

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"O.K. Thanks anyhow, kid."

He nodded and slipped away between the buildings into the backyard wild greenbelt. I looked after him. In a city of four million people there had not been much sense in asking a kid if he had seen one missing man, but sometimes I was lucky. Score one miss. I hadn't bet anything on it. I walked along, sipping my soup, into the public walkways of the Art and Gallery district, among the costumes of artists and customers. I walked faster than the slowly flowing crowd. Most people were there to look, but some were carrying large canvases and photo prints, and I watched for those in the crowd ahead and gave them plenty of room. I take up more than my share of sidewalk even without carrying soup, but I know the footwork of getting through a jammed tight crowd without touching anyone. Ahmed had made the UN brotherhood gang play tag games through crowds like this; you lost if any grownup complained or even lost his smile.

It was a happy crowd. The art gallery sections always are happy. Even the old buildings had happy vibes and special wild greenbelt spaces around wildflowers and tall feathery wild weeds, and climbing vines shining on the mesh links that held the green back from crowding the buildings. I wondered why they wouldn't let the vines climb on the buildings, and then began to think like a cop and saw that a clear space with no cover around each window kept people from secretly working on the windows to get into the gallery buildings and steal paintings, or sculpture. Half the people I knew were on pensions. Enough money for food and a place to stay, not enough money for buying something beautiful that reached you inside. Original art has high price tags. Must be a lot of stealing.

At the station house on Madison I picked up an envelope with my name on the outside. Inside was an envelope with the name *"Ahmed Cosvakatat,* missing person data, authorized personnel only."

I sat down on one of the station house benches to shuffle through it. It all seemed to be just Xerox copies of official papers on him. Birth certificate, school records, that sort of private stuff. Kind of a violation of privacy to even look at them. There was a missing-person report but it didn't have any of its blanks filled in except his name, description and where last seen.

He had last sent in a report on his wrist radio from 129th and Park Avenue. A bad district to vanish in. A lousy district to vanish in. The corner of the Black Muslim ruled district, Spanish Harlem and the shut off walls of Arab-Jordan. No open fights are allowed in the public ways that make open roads between these kingdoms, but the hatred is so thick you can cut it

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with a knife. The kingdoms have the right to appoint their own police and pass their own laws inside their walls. Once inside their walls trespassers vanish. The "police" inside the walls claim that no one entered. Adults with sense do not plan to trespass. They walk past the walls without looking up, or slowing down, and get by.

I went underground to the subway and took a moving chair to the 125th Street exit, and walked two blocks to the address, walked without looking up—past the high closed walls of Spanish Harlem towards Arab Jordan. At the corner of Park and 128th was a phone booth made out of stainless steel. I got inside and called Rescue Squad and asked switchboard for the chief.

Did he know he was asking me to go inside Black Muslim territory, or Spanish Harlem territory, or Arab Jordan territory to look for Ahmed? There wasn't any place else to look. I felt cold inside. The chief ought to give me some advice about how to get in, search and get out. Or did he just expect to take my last will and testament over the phone?

He accepted my call right away. "Judd Oslow here, George."

"Chief, I can't make anything out of those reports. What was Ahmed working on when you lost him?"

"Something big, missing. The crime department drafted all my best workers to help the search. Ahmed, too."

"What was it?"

"Information about it belongs to the Bureau of Criminal Detection, organization-motivated crimes. I can't tell you anything."

He'd told me something. The three kingdoms were organizations. I shuffled the stack of Xeroxed paper in my hands, hoping some information would turn up. "Did you ask Spanish Harlem, Black Harlem and Arab Jordan if they've seen a Rescue Squad man?" Dumb question.

The chief said blandly, "They have our missing-person bulletin, on Ahmed."

"Will they let someone in from the Squad to search?" Dumb question.

"No. They have their own police to do that."

Two of the Xerox papers slid away from my hands and I bent to get them, bumping my forehead on the shelf of the stainless steel phone booth.

In the stereo earphones the chief cleared his throat a couple of times, like he knew I was expecting him to say something else, then he said, "Start where he was last seen. You don't need a lot of information, George, not from what Ahmed said about your talent. Just be lucky, the way you were in the first three cases, and get on the job right away."

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"Oh, sure," I muttered and unshipped the earphones and throat mike and hung them up.

"Just be lucky," said his voice, getting tinny and far away as I hung up. I rubbed the hot lump on my forehead and stepped out of the phone booth.

Women in veils looked out of steel mesh-barred windows. The passers walked by, head down, not ready to make trouble by staring. The walls had been built when I was five, earlier—sometime about when I was born, the Israelis had another war with Arabia and took most of the desert country. Egypt stayed out of the fight and refused to take in Arabian refugees. Israel refused to take Arabian refugees because they said the Arabs were enemies and killers, and thieves and would be dangerous to their families. They said the war had been because the Arabs raided, looted and killed across the border every night, and they did not want Arabs inside their new territory.

The UN had resettled Arabian refugees to every country of the world. The United States quota of thousands arrived, cantankerous, resentful, and anti-Semitic, with the opinion that America was a Jewish country, and all Jews were enemies. They immediately discovered the new rights of cultural autonomy, and they imitated what was happening in Harlem and settled in a rim area around a demolished four-block slum, voted themselves a township, joined all the remaining buildings by walls, walled up all the doors, roads and entrances to their territory except one wide street that opened into the center space, dumped the center space full of beach sand, planted a few date palms, added a fountain, a small mosque and a minaret and declared the entire place an Arabian Cultural Preservation Club, off limits to nonmembers. Trespassers disappeared.

I was a kid, placed from an orphanage to foster homes in an old-fashioned area that believed in racial mixture. There was somebody in our kid gang from every race almost. The old UN building was near and we called our tribe the UN Brotherhood.

We had a game the Amerind kids called counting coup, but we called chicken-follow-the-leader. If you got too scared to follow the leader, you had to make sounds like a chicken and flap your arms instead of talking, when anybody said anything to you, for a whole week after you'd chickened out. When the black kids were leader they'd take shortcuts across Black Muslim territory and chicken out everyone but the ones who could look black enough.

We were great at follow-the-leader across the understruts of bridges, but when it came to making raids into race territories so many kids chickened we had to cut

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the penalty time back to one day of flapping and bird sounds. Ahmed would swank around in a sheet costume like an Arab and claim raids into Arab territory alone, and show us a pocket full of sand, but we didn't ask him to lead us in until he found secret passages through the cellars of ruined houses, gone houses scraped off flat and covered when the old slum had been half cleared, before the Arabs arrived.

Around then we were already calling him Ahmed the Arab. He stole sheet burnooses and costumes for us, and led us on five great raids into Arab territory. We went around in it like real Arab kids, looking at things that were different. Veiled women, harems, muezzin calls and praying flattened out, head toward Mecca. We saw the Arab young men, muscles oiled and shining, practicing war games and knife fighting.

If any real Arab kid got suspicious and tried to get close to us, Ahmed would lead us out, running fast through roundabout ways until we got to the blocked-off cellars of the demolished buildings. Then we crawled out along smelly dry waste-pipe tunnels to a manhole under the free public streets and safety.

Our last raid into Arab territory was the bad one. They knew strange kids had been in their territory and they were ready. The Arab kids were a yelling mob running close after us all the way out. They found our entrance to the cellars and caught up with our end line of running small kids. The big kid who stayed back to make sure the small kids got through got grabbed and brought down by a pile of Arab kids. They kneed him and battered his face until he was bloody. They were pulling loose bricks out of the walls to hammer him, but Ahmed led a charge of Brotherhood kids back to rescue him and the kids carried him out.

Ahmed had sworn to us that Arabs always go for the eyes and try to kill. We had enjoyed the danger and been careful, but it spoiled the fun to have it really happen to someone.

The tribe never followed Ahmed into Arab territory again. He never asked us to go. The Arab kids had found our tunnels and would be waiting.

That was seven years ago. Last week Ahmed had been given a job to search New York for something. I wondered if he had tried to throw on a sheet and search Arab Jordan. He might walk right in.

I broke out into a sweat, standing near the phone booth, looking up at the windows of the Jordan wall.

I'd looked too long. The veiled women who had looked out were already replaced by a crowding of kids' faces at the grilles.

"Ferengi," they jeered. "Juden. Kill the Jew dog." The old war

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calls of warriors who had lost. As far as Arabs were concerned New Yorkers were either Jews and enemies, or blacks and slaves, to be insulted accordingly.

The sun shone on my face as I leaned my head back looking up at the long high wall of Arab Jordan, mixed colors of bricks, where the lower doors and windows were walled up and once separate buildings had been walled together. The kids shouted back at me from the line of third floor windows.

I don't look like an Arab. A blondish guy, over six feet high, bulky at the shoulders, round in the face, short lumpy nose, light eyelashes, blue eyes, messy, light-brown hair, the opposite of anything Arab-Mediterranean, a big Northman type staring stupidly up at their windows, thinking or wondering.

Up at the windows cute kid faces with big, dark-lashed eyes jeered and cursed and offered unprintable suggestions about what they would do to a foreigner if he dared to step foot off the public freeways. I knew they meant it.

An older young man appeared at the nearest window, pushed the kids aside and shouted down in a voice of authority.

"What do you want?"

I had been a dope to attract their attention, but I had to think. Should I ask after Ahmed? No. If he was still hiding in there, maybe cut off from a retreat route, it could alert them to search for a trespasser. I thought up a lie.

"I'm a student, studying the history of the Arab culture. I was wondering how Arab culture had changed."

Several other husky young men without shirts were now standing at the windows fingering curved knives, turning the blades so they flashed light for me to notice.

The spokesman said, "We live as our ancestors did. Go back to your books, and do not stare at our women."

I turned and walked away, along the line of the wall, under the high windows. Something struck me lightly between the shoulder blades, but that would just be something small shot by an Arab kid from a beanshooter. The City police keep anyone from being hassled or hurt on the free pedestrian ways. They'd even shut down that kid in a minute, so I ignored it.

Up past 131st Street, in a clump of bushes in the greenbelt that ran down the middle of the street, there was the old manhole cover that led down to the secret entrances. There were wear signs in the dirt around the manhole cover showing that it was opened often, and candy wrappers showed that kids sat around under those bushes, eating candy.

The entrance was watched. I crossed the street going away, acting casual. I decided to wait until one o'clock. The kids might be home having lunch, and there was

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a TV serial playing—"*Lawrence of Arabia*"—they'd want to watch it, or their parents would make them want to watch it. Arabs would naturally want to watch a series that glorified Arabs.

At one o'clock I went down the manhole nearly confident. It was empty. I made speed through the waste pipe. Even though it seemed smaller, it was clean and polished from being used. I sprinted silently through the cellars around the familiar corners. Everything was cleaner and less dusty from being used a lot and the Arab kids had fixed up one corner with rugs and lamps as a clubhouse. It had flags on the wall and a curved sword hanging up.

Maybe they'd also installed burglar alarms at the entrance, that warned them. I skidded around a corner, looking for an old secret door they probably didn't know about yet, but there ahead the kid mob was coming at me, running barefoot, armed with sticks, knives, and stones.

They yelled, and stopped. I yelled and kept going, because the turn to the other tunnel was ahead. A couple of leader kids came at me and circled and one hit my shoulder with a dirty bat with a nail in it. I never was sure before, but now I remembered that the kid they'd caught the first time had been me. It's always easy for me to forget which one I was in a bad scene, because I know how the others felt, too, and I'd rather be a winner. When the Arab kids caught me I was thirteen years old. I'd protected my eyes, but my nose remembered how it felt to be mashed, and the tender parts of my skin remembered how it felt to be kicked red and soft. It was a hurting thing to remember. I panicked out of control seeing the same kind of kids coming at me again. The world slanted. I picked up the kid who hit me with the bat and threw him at the other kids, knocking them over like bowling pins. I pulled the bat with its nail out of my shoulder. It was a rusty nail.

"Psycho Arabs," I shouted, my voice bouncing back from the walls. "Can't you act like people? Give me any more of that stuff and I'll knock you back into the trees." I took the bat and went at them, crouched, and they scattered and ran squealing into the tunnels like a nest of frightened rats.

I didn't have long before they brought back their big brothers and uncles. Adult Arabs believe in torture, too. I ran down a side tunnel roaring, like I was chasing after kids. It didn't show but there was another cellar-stair entrance here we'd blocked up by covering the door with cement, so it looked like solid stone. Seven years is a lifetime from thirteen to twenty, but it's nothing to a wooden door.

I reached the stone knob that covered the handle, yanked it up

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and slid into the crack and down before it opened more than a foot. On the other side of the door was a handle. I pulled and slammed it shut and slid the lock tight with a rasp and clank. Chances were the kids just ahead had been running too hard to get away from me to have looked back and seen me slide into the wall.

It was dark and the air was bad. I groped up the narrow stairs in the total blindness, scraping my knuckles against a gritty stone wall, making gritty snapping sounds underfoot with rolling pebbles shoved down against bits of flaked cement. I stopped and thought.

I was here trying to find Ahmed. I was supposed to be trying to find him by picking up his vibes, but all I'd done was follow up a theory that he'd taken the old shortcut into Arab Jordan, or bluffed his way in the front door disguised as an Arab, and been caught. Me, so lousy at thinking up theories, trying to find him by using straight theory! I was better at using hunches. I'd do better trying to do it the way the chief said. Follow feeling.

If Ahmed was in trouble what kind of vibes would he be sending? I stood and thought, trying to remember Ahmed in trouble. I remember being close to him, shaking his hand. I remember him patting my shoulder and shaking my hand in congratulation for something. I remember me being a short fat strong kid of twelve and Ahmed at thirteen a foot taller already halfway through high school, tall and strong, physically as perfect as a greyhound, reading books, getting good marks in math, making out with a lady teacher, and leading his tribe into explorations of the city. I never got any trouble vibes from Ahmed. Ahmed was never in trouble. Plugged in all the time, vibrating with a kind of inner excitement that was logic.

With the smell of plaster dust inside my nose, caking it dry, I stood in the dark stairwell trembling with the same kind of excitement and effort. *Think.*

I remembered that a small flashlight was attached to my key ring. That was a thought. It was late, but it was a good thought.

I fumbled it out and switched it on. Bright light lit up the close walls of the stairwell, and showed plaster bits and dust on the stairs. I looked for footprints, but there were no footprints except my own showing in the dust behind me. Ahmed had not come this way.

I started up the stairs again, walking easy and avoiding pebbles, and came to a steel door blocking the stair. Beside the door was an irregular hole where we had pulled out bricks. The hole was big enough for kids, but not for me. I twisted five more bricks loose and stacked them quietly on the stair, pushed bits of cement out into

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space and heard them click and hiss against stone twenty feet below, and then I went backward, feet first out the hole into space, and groped downward with my feet, contacted solidity and went the rest of the way through and stood on a steel girder.

I flashed my light around. Unused outside windows faced each other in the boxed-in darkness. Six floors of unused outside windows. The two old buildings had been connected by bridging the space between by a roof and a front connecting wall. What had been an outside airspace between them was closed in. The two old walls had been braced apart by adding crossbeams between them.

I sat on a crossbeam and dangled my legs and thought. I picked out windows with my flashbeam while thinking. I could go in any of those windows, but in the building on the other side, on the third floor, we exploring kids had found offices in use. Playing a game of make-believe we decided we were UN spies, assigned to find out an Arab plot against the peace. We said we would listen behind the walls to the phone calls the important Arab leaders would make, and listen to their conferences. But we never came back to do it.

It would be easy to listen behind the walls. Inside each building the irregular outline of the useless windows had been covered and smoothed by inside partition walls in front of them. There was space between the walls and the real walls, enough to move around in.

I slid over on the crossbeam by shifting along with my hands and seat instead of getting up. The window on that side was gritty and old, but we'd opened the lock and oiled it seven years ago. It had expensive ball bearings that last. I lifted and the window raised easily with only a faint rumbling creak. It opened into a darkness that smelled of fake leather plastics, air-conditioning, and coffee.

I felt a nearby blast of alertness, like caution, only sudden and too strong. Someone had heard the noise. That was not an end-point-bad thing. I didn't have to make any more sounds. Listeners always got bored and went away when they had to listen and couldn't hear anything.

I put both hands on the sill and hoisted myself over and inside without touching my legs to anything, placing one foot on the floor slowly and easily until the floor held the weight without a creak. I switched off the flashlight and saw light coming through long cracks between the plywood panels. The joins of the panels were long clear plastic strips that gripped the panels on either side. I could see through the strips. Easy.

Voices murmuring. Somebody snapped something in Arabic, or Swahili, and the others shut up.

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I listened hard. Another voice started to speak. "As for the question you hold in your secret self. Here is your answer, written in the sands. They say you will never attain your ambition. You will fail. They warn of death." It seemed like a stranger's voice, loud and pretentious, but somehow it sounded like Ahmed.

"What is my ambition, dog?" The voice was furiously angry. "You do not know my ambition."

"To take the rule and command of Arab Jordan," Ahmed said in a loud deep voice. There was another howl of group laughter, but they were afraid.

"The truth again!" "He hit you, Selim." "He heard you talking in your dreams."

Under cover of the noise I moved toward them, past an empty office that showed through the cracks, and then opposite a conference room, with a shelf of low padded benches around the wall, and a coffee machine, and many small coffee tables. The people were milling in the conference room, sitting on coffee tables—five young men, bare, dark-brown chests, light-brown shorts, with knives in sheaths at their belts.

Ahmed sat on the other side, a table pulled up close, covering his lap, his hands on top of the table, smoothing a layer of sand slowly across the tabletop. He was watching them steadily, without expression. His dark eyes were narrowed, his face was unshaven with the start of a black beard beginning to show a clear border line across his face. He looked big, skinny, tired and ugly.

It gave me a jolt seeing him look so ugly. Something was badly wrong with Ahmed. The Arabs looked around nervously, and glanced into the other office through the doorway as if expecting someone to dash in and arrest them. They weren't expecting me behind the wall. I knew that. Ahmed sat at the sand-covered table, hands on the sand, like a man ready to play a piano, as if he had everything under control. Apparently he was telling fortunes, sand-Rorschach style, with a light sideways to the table generating shifting shadows. I'd seen that in his police book of projective technique, in questioning.

Did he need rescue, or didn't he? If I tried to get him out of there, was he leg-cuffed to the wall, or free?

The Arabs started another round of argument in their languages and I tested the wall gently under cover of their noise. It creaked behind them, and they shot another set of nervous glances into the front offices like kids swiping cookies and expecting Daddy to arrive.

Selim, who had not liked Ahmed's prediction, started shouting in Arabic trying to give them orders, pointing at Ahmed, making alternate hand-over-the-mouth si-

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lencing gestures and throat-cutting gestures. Clear enough that he was trying to get them to kill the prisoner. But his tone had a high-pitched desperation about it, and they laughed and pushed at him, kidding, refusing to take him seriously. A wolf pack, sensing weakness in a big wounded animal, will tease and nip at it. He commanded again, gripping one by the shoulder and pointing at Ahmed, and the one commanded, grinning, took out his knife and offered it to him, inviting him to do the job himself.

I tested the panel again. It bulged away from the supports a little and a line of brighter light showed at the edge of the plastic seam, where the panel was getting ready to slip out of its hold. One quick kick would do it.

The heavy-set one, Selim, sullenly accepted the knife and walked across the room, threading among benches, coffee tables, and ash trays toward Ahmed's side. As he neared Ahmed he crouched into a cautious fighter's stance and circled left.

Ahmed did not move. Leg-cuffed probably, fastened under the table.

In the narrow dark space between walls, I braced back against one wall and raised my foot for the kick and push that would crash the panel out of the other wall. I gave a quick prayer to whatever power might be ready to help the good guys against the bad guys. The odds were bad. But I had a chance. Knives would slow them down. Hitting is faster.

"Don't do it," Ahmed called. "Wait! Not the right time now." He was calling to me. I know that tone of voice. He knew I was here.

I stopped and lowered my foot cautiously back to the floor.

"Wait?" asked a surprised Arab voice. "You were already dead yesterday, dog, when you came into our territory. You have been borrowing time by telling fortunes for children and women and fools." Selim's voice grew louder, in a snarl.

I put an eye back to the plastic strip and watched the stocky Selim circle closer from the left. Ahmed had both hands lifted slightly from the table, in readiness to move, and his head was turned toward Selim. He looked past him to the doorway.

"Was I a fool about your ambition?" he reminded, goading.

The others laughed, secretly watching, and Selim, with an enraged obscenity, darted his knife at Ahmed and then jumped back. I saw that Ahmed had a good chance of grabbing the knife from him. Any man with strong fast hands can grab a knife away if he uses left hand against right hand. Also he could throw sand in Selim's eyes from his right hand. And the table protected his lap and legs and prevented a front approach. When I put myself in Ahmed's

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place, I saw that it was a safe place to defend himself. Selim needed his friends' help. Two men or three could hold Ahmed without a struggle. One man against him was in trouble.

Ahmed had said something that made Selim's friends refuse to help. "Your ambition—to take rule and command of Arab Jordan" had done it.

Deserted by his friends, Selim circled snarling out of Ahmed's long reach, looking more of a loser and a fool each minute that passed, for technically he should find it easy to kill an unarmed, shackled prisoner. The other knife fighters watching knew it was not easy to kill a man with his back against a wall, but they laughed and jeered.

"Rule and Command." Watching them made it clear. If those words meant that Selim planned to kill the Ruler in order to rule, any man who silenced Ahmed admitted that he wanted him silent, admitted that he was a friend of Selim's in his plan to assassinate—who? Someone who might find out what they were doing. Someone they were afraid of.

The jeering and jokes and cheers rose to a crescendo and cut off like a radio suddenly switched off. They were all stopped, heads turned toward the door.

I looked at the door.

A man stood there wearing a white cape with a purple stripe around its edge. He was heavily muscled for a small aging man, evenly tanned to the top of his balding head. He stood watching, with all of him focused in the watching as he looked from person to person.

They waited for a reprimand, or an accusation, frozen.

He smiled and said, "Don't kill him, children. I have not had my fortune told."

They laughed and relaxed.

The short balding man, the leader and caliph of Arab Jordan, scholar and historian Akbar Hisham, came into the room among his young followers and sat on the leather bench. I saw the back of his head and the white cape over his shoulders. I remembered hearing about him and seeing him on newsreels.

The educated and skilled people of the conquered Arab countries had easily gone to other countries and found welcome and good jobs. The uneducated had huddled in homeless masses just past the border of their captured country. Only the historian and writer Hisham, among the educated—Hisham had chosen to join the refugees, eat what they ate, and go where they wandered. Who wanted immigrant camel drivers? Who needed dung collectors whose skill was making burnable bricks of camel dung? Who wanted the orphans, cripples and women that were flotsam from a defeated army? The desperation of the unwanted became too acute

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to ignore, and the UN distributed the homeless in a small allotment to each country of the world. They were taken on command, unwillingly.

Akbar Hisham came with his angry refugees to New York.

In the sixth grade, my English teacher used to play a video tape of his speech. She had put on the video tape and Akbar Hisham appeared on the class TV, gripping a microphone, looking younger with black hair on his head.

"You offer brotherhood," he said into the microphone. "Brotherhood means sharing what you have. Beware a man who has only defeat and loss and humiliation to share. He will share it. People of New York do not offer to be brothers to the refugees of Palestine and Jordan and Arabia. We do not want your friendship. We will take the money paid us as our due for the theft and loss of our country, and we will educate ourselves back to pride and power and command. Beware the next generation."

Our English teacher had played it six times. She said it was like Satan's great speech defying God in "Paradise Lost." I had disliked the speech and admired the man. He was still king of Arab Jordan. He was getting old and bald, but he still knew what he was doing. Maybe he'd know that Ahmed was one of the good guys and let him loose.

Dumb idea. But I could hope. They might be alike.

Ahmed relaxed from being ready to fight, and waited. Hisham did not look in his direction.

"Sit beside me," he said to Selim and tapped at the bench. Selim sullenly holstered his knife and sat, gesturing the others back against the door so that the leader Hisham could have a clear view of Ahmed.

Hisham asked the ambitious one a question in Arabic. The young contender for the leadership answered in Arabic, scowling, looking at Ahmed, then repeated in English. "Nothing. He learned nothing."

"That was two days ago. Has he been watched steadily since you questioned him?"

"Yes. He knows nothing of our enemies or their plans. He is from Rescue Squad, not from the police detective bureau."

"How did he get in?"

"He walked in the main gate on the other side of a truck of supplies. He was wearing the headdress of a visitor-relative from Iraq. People saw him pass and asked about him. We caught him in the offices."

"How much did he read and find out?"

"He didn't have time."

"Are you sure? He has been here, near the offices two days. Did he get to a phone and make a call out?"

"We were letting him tell for-

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tunes for the women. He was always watched, and always shackled."

"Are you sure?"

"Yes." Selim, the ambitious complained of being doubted in a quick flood of Arabic.

The leader, Hisham, answered in Arabic, then took a box from his pocket, opened it and handed a hypodermic to him. His lieutenant passed it to one of the young men in the doorway and gave an order. The one ordered walked forward, jabbed the hypo through Ahmed's shirt into his right bicep, pressed the plunger and returned back to the doorway.

The leader, Hisham, held out his hand, with a soft-voiced request. He took back the empty hypo and inspected it. "Good." The balding man looked up at Ahmed for the first time. Ahmed returned his gaze, both hands flat on the tabletop. He had not moved when approached with the hypo, or when jabbed. The leader gave him a polite nod and said:

"Prisoner, you have just been given another shot of truth drug. Count backward from twenty."

"Twenty, nineteen, eighteen, seventeen, sixteen, sixteen, twelve, nine . . ." The lean proud face with black eyebrows looked more Semitic than the Arabs. He stopped and then shook his head, confused.

"Thank you. That is enough. Captive, did you open or read anything in these offices?"

"Two bills, telephone and light bill, one note in Arabic—couldn't understand it."

"Captive, did you make any phone calls from here?"

"No."

"Good." The leader turned to the others at the doorway. "You watched him well." They let out breaths of relief, and two smiled.

The leader looked around tolerantly at the group in the doorway, and at his assistant sitting beside him. "I hear that getting a fortune told has been a popular game for two days. I hear he has been fooling you well."

The young men murmured protest, then gathered courage from each other to defend their judgment.

"The women said that he tells them the past and present, and tells the truth," said one. "We came to test him."

"He told my past, and told things I had seen," said a young warrior. "Then he told me my future."

"He sees pictures in the sands. The sands speak to him."

They added remarks in Arabic, defending Ahmed as a fortune-teller. Only the assistant leader with

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the sullen face, sitting cross-legged beside his leader, was silent and added no praise of Ahmed's fortune-telling. His knife was back in his belt. He looked at the floor, and did not look at Hisham, leader of Arab Jordan.

The leader smiled at the others. He leaned forward toward Ahmed. "Captive, can you tell my fortune with truth drug in your mind?"

Ahmed looked down at the tabletop. He brought the flexing lamp down closer to the surface and tapped on the table, and tiny hummocks and hills in the sand spread long radiating bars of darkness away from the light.

"I can still see is," he said, "but I don't know how the drug . . . Pardon, sa drug makes my tongue thick." He looked up, tired, skinny,

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but alert, his eyes watchful under heavy black brows. "I can try. Do you want past, present, or future?"

"He will still try to tell fortunes with truth drug in his blood," the leader remarked to the others, and turned back to Ahmed with a chuckle as if back to a delightful child's game.

"Tell me my future."

"The future is in the hearts of men and in their secret dreams. The group dream of mankind creates the solidifying world." Ahmed recited in a remote voice, looking down into the shadows of the tabletop. "How far do you wish to see? One year? Five years? Ten years?

"Twenty years," asked Hisham. The short strong man cocked his balding head in an exaggerated, jolly listening pose, and waited.

The others added to his air of cheerful play with muttered laughing remarks.

"No." Ahmed brushed his hand across the tiny sand landscape, flattening it, and pounded softly on the table with the edge of his palm. The vibration rippled the sand and it rose into a wave pattern and clumped in new, small rising hills. The hills threw long, moving streaks across the table. He stopped pounding.

"I see nothing. There is no future in twenty years," Ahmed said, without any expression in his voice. I caught vibes of fear from him as he looked up. "I do not see you alive."

I did not want the jolt of that message received. I shut off feeling-vibes.

The leader straightened his shoulders until he was sitting very straight. He looked steadily across the room at his fortune-teller. He spoke in a low voice. "Ten years."

The silence was total while Ahmed looked down and tapped on the table again.

"I see two roads. You will be alive in ten years, or you will not be alive in ten years. The road forks."

"Where will I be alive?"

"Here, in Arab Jordan, still caliph, king."

"Where would I be dead?"

"In Boston, M.I.T. during a lecture on ETV about comparative cultural enclaves. Much noticed by social science journals and critics of historical writing."

"But dead," said the leader in a low voice and chuckled.

"Kill the fortune-teller, effendi" urged one of the young warriors, choking. "Do not let him . . ."

"QUIET," the leader made a hand gesture to the side, without taking his eyes from Ahmed. "You do not give very pleasing fortunes, Captive," he said mildly. "Do my subjects receive their fortunes and accept their fates gratefully?"

"I've been slapped and scratched," Ahmed said in his slowed and thickened voice. "They

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put some wires on my legs, and they hold a box with a button. When they grow angry they push the button."

"Hand me the box," said the leader Hisham to the others.

They handed the leader a small metal box with a red button on the top and an electric wire trailing from it toward the table where Ahmed sat. The leader held it before his face, inspected it humorously, acting, and with a stage gesture, pushed the button.

It was time to laugh, and they all laughed.

The leader gestured for silence, and they quieted, but now relaxed, forgetting their horror of the prophecies, murmuring exchanged jokes and pushes.

"Messengers of bad news to the king usually had their heads chopped off," the short, balding man said to Ahmed apologetically. "You'll pardon me for keeping old customs." He placed the box on the bench beside him and leaned forward, legs crossed, to ask another question. "Consult the sands again, Ahmed, Captive. How do I avoid all wrong forks?"

"These people are your people. Do not become angry with their disobedience and destroy them. Do not become angry and wish that their foolishness will destroy them. Wishes and dreams become the future. Someday you will destroy Arab Jordan."

Selim, sitting beside his ruler, snorted quietly, sneering at the idea that the old man could destroy them. Then he looked at the others and saw that they believed it, and gestured behind the leader's back.

The leader ignored the sounds of motion and leaned forward, his voice quieter and more dangerous. "You give dangerous fortunes, Captive. It pays to be tactful. In what way do you see that I am planning to destroy my own city and my own people?"

"By leaving them. You lead them on a narrow plank across an abyss. They think there are green fields on either side of your narrow path, and they wish to defy you and wander. Someday you will grow angry when they insist on another fool's plan which will destroy them, and you will leave Arab Jordan and let them destroy themselves."

The leader still leaned forward, his expressions shifting as he thought, his gaze on Ahmed's face as if he listened to the words after they had stopped.

The hand of the thickset Selim, contender for the leadership, reached forward to the box and pushed down on the red button. Ahmed winced and twitched, looking surprised, then steadied again.

"Listen," said the leader, Hisham, to the others. "Hear this fortune-teller!" He addressed Ahmed again. "I will destroy them how? Repeat it please that these young planners of

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rebellion will understand what you are saying."

"Someday you will grow angry with their disobedience and destroy them by letting them do as they wish," Ahmed repeated. His face seemed leaner and more ugly, the head position more upright and tense. The contender, Selim, silently resenting Ahmed's praise of the leader, had his finger down on the button of the electricity box. Electricity poured in one leg, up to the top, across the lower body and down the other leg and out the other wire. It wouldn't shake a man into convulsions or stop his heart like an electric chair victim. I got no vibes of trouble from Ahmed, but he was intensely playing some sort of a logic game with the Arab scene. Sometimes he could take pain without caring or noticing, when he was working a plan.

The leader looked down and saw that another's hand was pushing the button of the electric box. He looked sideways at his assistant and competitor. "Do you object to the truth?"

Selim took his hand from the red button. "He tells lies. He is telling fortunes only to postpone his death, we all know it."

"Lying you say?" The leader looked at him with rather too much understanding in his smile to have the smile pleasant. "His mind is full of truth drug. I don't know how he sees so much, but he speaks the truth as he sees it. Here, try the punishment box and see if the truth drug is working. See if you can force him to change his name."

"No need to prove," the contender grumbled, his round creased face frowning at the floor.

"Stand up and test to see if he is telling the truth," the ruler ordered sharply, handing over the box.

"Effendi," said the young man, radiating hatred. He touched his forehead in a gesture of obedience and took the box, and walked to the center of the room, and watched Ahmed, standing well out of his reach, "Lying dog, listen well. Ahmed, the Arab, is what they call you." He raised his voice louder. "Are you an Arab? If you can swear you are an Arab while filled with truth drug I will not hurt you."

"I am not an Arab," Ahmed said, tired and truthful. Selim the contender pushed the button in the box, and Ahmed's neck muscles tightened and his feet moved. Electricity moves your muscles.

The finger let the button up. "Are you an Arab?"

"No." Again the button, this time held down.

"What race are you?"

"Algerian and Canadian French on my mother's side, Romany on my father's side." Ahmed's head pose was alert and steady. He looked at the questioner and moved his lips only slightly in answering, but his eyes watered, his neck muscles stood out corded, his fingers

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spread out on the sand of the tabletop like claws. His face skin grew shiny and grayer, like an invisible layer of dust settling on him.

I stopped looking through the light cracks in the wall, and instead looked at the narrow sandwich space between the walls where I crouched. I clenched my fists pushing into each other to work off the urge to kill. It was good that no one had good conscious pick-up of feelings among the Arabs, not even Ahmed. Nobody would have liked my vibes. Sure I believe in the principle of self-determination for cultures, and the preservation of cultural diversity as much as the next citizen. I was taught in school of the rights of privacy and individualism, diversity for individuals and for groups. I learned from experience that the laws were right about privacy being the foundation for the right to be different.

No one should watch too long or too closely any people in action who have a different set of ethics and standards and customs. That's what they told me. And they were right. I don't grok Arabs. Everytime I watch them in action I want to run away from them, or kill them.

"Interesting . . ." the voice of the leader was saying. "Stop the punishment, I want to get a clear answer here. Captive, Romany means gypsy, doesn't it?"

"Gypsy means Romany," replied Ahmed's voice. I got no fear vibes from Ahmed, but a kind of reluctance. Score one for truth drug. Ahmed had never told the other kids of the UN Brotherhood what his race was. The leader's thought was the same as mine when the leader asked his next question.

"Are you telling fortunes as a gypsy? Do you believe as a gypsy?"

I was afraid of the answer. Ahmed, logician? Ahmed, scientist? Believe? But the Arabs were impressed by having a real gypsy, and the ruler Hisham wanted them to be impressed.

"No simple answer is possible," Ahmed answered, after a pause. "All beliefs fit to the event. All interpretations of the separate techniques infiltrate at once into my thoughts when watching the shadows, or dealing the cards. Does the future cast its shadows ahead? Do small random events now show the pattern of a giant event growing and forming in the future? Or is Jungian analysis right, that evolving intelligence has filtered down into the dream world of night sleep and primitive memories, and the dreams are becoming plans, and the joined racial mind is drifting through sleep telepathy and joined dreams of individuals into directing our future by its dream plots. All authorities agree only that subconscious thoughts paint what we see in shapeless shadows," said Ahmed's voice, sleepy and thoughtful. "But what sends the knowledge?

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Every culture magic has a different explanation. I follow statistical pragmatics, instrumentalism, logical positivism. I will believe all theories when they work, and disbelieve when they do not work. I study magic. The number of different explanations for prevision are . . ."

"Enough." The leader stemmed the flow of what seemed to be an endless answer to his question. I wondered if he was as confused by the answer as I was. I looked out into the room again and saw that he was smiling, triumphantly looking at the others and the others were humbled, as impressed as if they had listened to a long magical incentation in a strange language.

Selim still stood resentfully in the center of the room holding the button box. "He is a gypsy," he said abruptly. "Gypsies are liars."

Wearily the older leader waved a hand in permission. "Go on with the test then, prove that he is not lying. Remember that the punishment box makes any man want to obey you. If you command him to lie, and he cannot . . ."

Selim spun toward Ahmed, gripping the box like a weapon. "Say you lie, dog. Did you lie?"

"I tell it as I see it," Ahmed said, looking down at the table of sand shadows. "Truth is a measure of words compared to facts. How can I answer about theories and wonders?" The truth drug had him decidedly drunk, his words poetic rather than the usual snapping precision. Selim's finger hit the button and stayed down, and Ahmed stiffened and stopped talking.

I wondered how the button box punishment felt. Arabs believe in extreme torture as something fairly to apply to enemies. If it was dangerous to Ahmed, to his health, to his life, would he give out fear vibes? Would he yell for me to help him? Was I right to just crouch behind a wall and wait for Ahmed to give me a signal? I ground my fists together, wondering. Maybe Ahmed was so busy playing his strategy game between the two leaders he didn't notice he needed help out of there. I began to hurt, imagining electricity.

Selim's voice came loud and harsh, his last chance to discredit Ahmed's endorsement of the older leader as the only leader for Arab Jordan. "Ahmed, police cur, if you call yourself an Arab I will remove my finger from the button and the electricity will cease. Merely call yourself an Arab. What are you?"

"A man."

There was a kind of a sigh of breath let out by the watchers.

The gray-green color and shine of sweat on Ahmed's skin was something I associated with the sight of terminal cancer patients in hospitals. In hospitals that kind of pain has a special stink of its own, too. Selim, the husky contender for the throne of leader held out the

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button box for all to see. His thumb was white, holding down the button. He shrugged, in an oddly good-natured gesture of resignation, and let up the button.

He held out the box to the others with a cynically defeated little bow, and other hands reached eagerly for the instrument.

"Enough," the older leader suddenly held out his hand for the button box. "Too much use of electricity makes heat. We want to hurt him, not cook him." He took the box and looked at it. A square metal box with a red button on the top. "Ahmed, the Gypsy, why don't you scream or groan when we push the button?"

"You make me angry," replied the tall young guy that was my friend. He stiffened his spine even more and sat behind his table of sand with both hands resting flat on the table, looking levelly across the room at all of them. It wasn't a glare, but it wasn't any smile either.

I liked that answer. I would have said it that way myself. Usually when you ask Ahmed why he does something he answers something about logic.

He said suddenly. "Also there is logic. It's not logical to groan; it doesn't help. At my eleventh year, when I was sworn into the Romany tribe, I swore that pain would never change my course."

The leader put the box down beside him. "Your promises have power. Will you agree to make no complaint and take no retaliation for this questioning?" He turned to Selim and the young lieutenants standing near the doorway. "His promises have strength. We can bind him with a promise to make no trouble and turn him loose. Do not kill when you do not profit by it."

"Trespassers are killed," protested a young warrior.

"I'm changing that rule," the leader said. "Any other complaints?" He looked at Selim.

Their eyes locked. With a faint smile Selim, the sullen, touched his hand to the center of his forehead in a gesture of respect and obedience. "No complaints, lord. Ask the sands about my loyalty."

The warrior who had spoken before complained again. "He is a spy, effendi. Do we let spies live?"

"Not a spy, not an enemy. You already questioned him. Ahmed, policeman, what are you doing here? Say it so these fools can hear."

"I am looking for a missing person name of Carl Hodges. He is needed by the scientists on a project. He might have wandered away or been kidnapped."

The leader straightened his legs from a cross-legged position, and put his feet heavily to the floor in a gesture of irritation. He leaned forward at his men fiercely. "Do any of you know of a Carl Hodges?"

There was no answer. They looked confused and sullen.

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"Do any of you have a prisoner you have not reported to me, or know of a prisoner anywhere in Jordan that has not been reported to me?" He pointed a finger at each in turn, forcing each man to answer separately.

"No." "No." "No." "No." "No."

He stared at them fiercely. "If I were missing, would any of you search for me in Black Muslim territory? Or in the Israeli Embassy? Perhaps you would. *Think,* don't answer too suddenly. This man's job is to rescue people. Where does he have to go to do his job? Into fires—into gas—into Arab Jordan—into hell, eh?" He laughed strangely, and spoke when he caught his breath.

"We say that Ferengi are all castrated, don't we? Which of you males would like to join the New York Rescue Squad?" He stood up. "We will turn him loose."

He turned to Ahmed, courteous in stance and voice. "Guest, I give you freedom of my house, my food, and my servants. Come to the front gate, knock and ask admittance when you wish to see me. We can share coffee together." He knocked the button box to the floor and kicked it, and it clattered and skidded across the room.

"Why is this thing fastened to a guest?" he roared.

Hastily two of his young men moved forward, crouched on either side of Ahmed's table and unfastened two steel leg cuffs and a long split wire ending at two rubber straps with electrode contact pads, that probably had been fastened to his ankles.

The leader held out a hand. "Shake on your promise," he said, doing it American style.

It was a good show. The vibes had turned good, everybody felt friendly. But I couldn't figure that an Arab would let an enemy loose because the enemy has courage, or brains. Those are good reasons for putting an enemy out of action, if you think like an Arab. I puzzled about the Arab leader's reasons while Ahmed stiffly pulled his feet under him, worked out from behind the coffee table and half-tottered and half-strode over to shake the short, balding man's hand. Ahmed was also putting on a good show, pretending energy. He stood there swaying, getting used to standing up after many hours.

"No hard feelings," he muttered. "If you need me, call Badge 58 Rescue Squad, Ahmed Cosvakatat." He turned to go, then turned back uncertainly and looked at the wall where I hid. He looked straight at the plastic molding where I had my eye. It was like looking straight at me. "Can't go yet," he muttered and stood there making a difficult slow effort to think. Without any more of his preset plans to decide his action, he was mentally too relaxed, coming apart.

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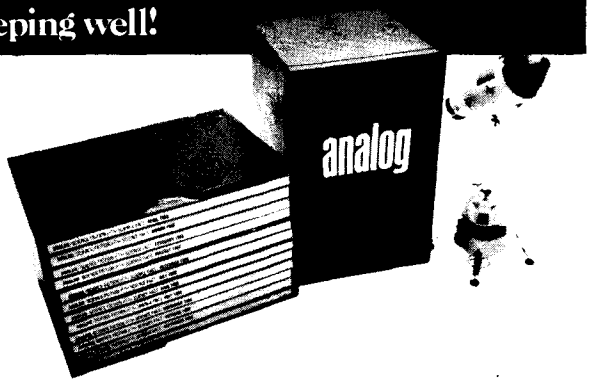

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The leader looked at his undecided stance and registered concern. "I don't want to insult a fighting man by offering help, but my boys are rough sometimes. Can you walk?"

"That's not it," Ahmed said. "I'm gomma . . ." He took a deep breath, stiffened his legs, made his face expressionless, pulling himself back from ragdoll to steel robot. "I'd like to ask a favor. Would you do me a favor?"

"Without knowing what it is?"

"That's it. Important I don't say. Friend's health."

The Arab leader hesitated and looked sideways at his listening audience of young men, an audience always waiting to see if he was hostile enough to the Ferengi, and intelligent enough to rule. "You'll owe me an equal favor?"

"Yes, anytime." Ahmed looked away from the wall while he spoke. "Now, you are giving me freedom to leave, right?"

"Yes, to leave and to enter. Next time come to the door with pride as a fighting man and share coffee. Spies are like rats in the walls, treated like rats."

Ahmed asked soberly, "Would you give another free pass out for a fellow rat? Whom I value?"

"Someone else? Where is he?" the leader demanded.

The young men leaped to atten-

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tion, drew knives and prepared to rush to any spot in the city Ahmed named. "A spy!" "Another spy dog!"

Ahmed started to speak and put his own hand over his mouth, making a muffled sound of answer. I remembered the truth drug. He had been asked a question. His tongue answered all questions. He took his hand from his mouth and got back into a formal style of speaking. "Please. I do not wish to betray a friend. He will leave quietly with me if you promise to allow him to leave."

"I promise. I promised already." The leader was impatient and aroused. "Where is this rat in the walls?"

Ahmed pointed at me, behind the wall. "Someone breathing and moving around behind that wall panel. That's got to be George."

The leader stared at the wall and laughed loudly. "Right beside us! You Rescue Squad Jews do travel around." He laughed loudly some more. The sound had bitterness. "Come out, George, we've promised not to hurt you."

They all laughed, trying to be casual and good humored about being fooled and spied upon.

I found the weak place in the fastening again, pushed on it with one hand until it creaked and then hit beside it with the edge of my other hand. The plastic binding strip popped and let go, and the panel swung out, like a door falling off its hinges. I grabbed it and stood blinking in the light, probably surprising them, a big guy holding a nine-foot by three-foot plywood panel in one hand, kind of popping out of the wall.

"There's our rat," shouted the leader, the jolly note wearing thin, his voice getting too high-pitched. He was feeling like a fool. Maybe he felt Ahmed had worked the scene and controlled him, and he'd been willing to let it go without scoring it, but now he was getting ready to freak out and kill us to get back into control. He needed respect. I leaned the panel back against the wall.

"Sorry, sir," I said to the short man, and gave him the Arabic gesture of respect and greeting, touching the forehead with a slight bow. "I mean no harm. I am only here as his friend." I looked at Ahmed.

"Hullo, George," Ahmed leaned against a bench and giggled, coming apart again. Relief was hitting him harder than trouble had. "You were looking for me, eh, George?"

"Sorry—" I mumbled.

"What's to be sorry about? You did well!"

"Who is he, your brother?" asked Selim.

"No— Yes—" Ahmed giggled. "He's a brotherhood brother, in the Rescue Squad. He has a soft heart and a soft head and helps me find people. He has instinct like a homing pigeon, don't you, George?"

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I could only glare. I don't like being made fun of in front of a crowd. "They gave you talking shots," I growled at Ahmed. "Shut up."

"Escort them out," the leader Hisham gave orders, then peered into the opening and gave other orders and young men began entering the space between the walls to explore the secret routes.

"One good secret passage shot to hell," I growled on the way down the stairs. The Arabs escorted us courteously, without insult, and let us stop at a bathroom on our way. Ahmed drank four glasses of water, threw up, drank three more glasses of water, doused his head in a sinkful of clean water, took off his shirt and scrubbed his skin with paper towels, then combed his hair, before letting me at the sink. I washed off my own smell, beat cement dust out of my clothes and we both went out looking new again.

On the way down the Arab leader passed us, hurrying on an errand with two assistants. "Perhaps you will tell my fortune again sometime, and it will all be different," he said to Ahmed as he passed and he grinned.

Outside we walked around the shaded edges of the sand park and two Arabs opened the barred huge gateway that swung across an entire street, and held it partially open for us to leave.

We walked back toward the subway. It was still daylight, about four o'clock. "Did you get any leads on whosis?" I asked, trying to remember who the department sent him looking for.

"No, but I think I figured out a good place to look for him."

"Can I come along?"

"No. It's detective work, not Rescue Squad. It's probably a kidnapping, and the missing man won't give off any vibes for you, George. He was too doped to know he was in trouble, and probably they'll keep him doped. It's a matter for good logic and footwork, not hunch." Ahmed walked along more briskly, keeping pace, occasionally stumbling over something in the sidewalk.

"I found you, didn't I?"

"That's something else." Ahmed stumbled again over something and barely recovered his balance without falling. I looked and didn't see anything to stumble on. Ahmed might be in bad shape. He'd been missing since Wednesday. Two days and nights with Arabs could be tiring if it didn't kill you, even.

Had Ahmed been telling fortunes all that time, to everyone there? How else had he been standing them off from executing him or trying to get him to scream? The leader had probably arrived interested when they told him the fortunes seemed true, and had too much information. The leader's fortune was probably the four hun-

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dredth fortune told in a row, with everyone earlier playing with that little red button when they grew bored with fortunes.

I took Ahmed's arm. "We're going to Med Center. Call the Chief and tell him whatever your theory is about where the kidnap victim is. He'll put somebody else on it, and then we can go to Med Center and get you some Band-Aids or whatever you need. O.K.?"

"O.K.," he stumbled again more heavily and I held up his arm until he steadied. His arm got slippery. The stink of pain was coming from him in his sweat smell. "You do think pretty good sometimes, George," he said.

"I don't get any vibes from you, Ahmed, so I found you without vibes," I said loud in his left ear. "I can think."

I got him to a phone booth and he almost fell into it. It was the kind with a shelf to sit on, which was good luck. He pulled down the earphones and throat mike and hooked it over his head.

"O.K., George, so you're lucky sometimes! Don't push it and think you're as good as a cop with a badge." He grinned like a death's-head, with teeth that needed two days' cleaning, and dialed with a hand that shook like a tuning fork.

I wanted to smash his grin. And I understood why the Arabs had laughed in the hysterical way. When you can't do anything else that works, you laugh or freak out. The guy is totally uncontrollable.

When you can't make a guy do or say *anything* that you want him to do, you got to kill him, get away from him, or give up and let him be boss. Ahmed had always been boss.

"You call Med Center and get me there after I call Headquarters," he repeated.

"Yes, boss," I said.

He looked me up and down, grinned again with that skinny, big-tooth, death's-head grin and didn't answer. ■

The Analytical Laboratory, May 1970

PLACE	TITLE	AUTHOR	POINTS
1.	Resident Witch	*James H. Schmitz*	2.35
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THE EDITOR

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SOME STRANGE THINGS HAPPENED AT BAYKONYR

The Russians have been quite good at reporting their triumphant achievements in space—but not so hot at telling about the major goofs. And they had one that was a lulu . . . !

G. HARRY STINE

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(*Author's note: Readers are urged to refer to the two previous articles on the Soviet space program published in the August 1968 and September 1969 issues of Analog. The author provided therein some history of the Soviet space program and some speculation on the large Soviet boosters. This article is a follow-on and is the result of the same sort of clipping and filing of public domain publications. No classified sources are used to obtain the data used in these articles. However, the synthesis of the information into a pattern in an attempt to understand the Soviet space program is the full responsibility of the author and does not reflect in any way the policies, or opinions, of any organization with whom he is associated.*)

"I can state positively that the Soviet Union will not be beaten by the United States in the race for a human to go to the Moon."

Thus spake the late Cosmonaut Vladimir Mikhailovich Komarov, command pilot of Voskhod-1 and the ill-fated pilot of the disastrous Soyuz-1. Komarov spoke these words at a Japanese school in July 1966. They were, at that time, not idle boasting.

On July 20, 1969, Astronaut Neil A. Armstrong of the United States of America made that "giant leap for mankind" at Tranquility Base.

And Luna-15 ignominiously crash-landed in the Mare Crisium.

The Soviet space program was certainly not the invention of American space enthusiasts to be used to obtain funding. And the statements by Soviet space spokesmen were not false or misleading. The Soviets were—and still are—spending about as much on their space program as the USA and actually a greater percentage of their GNP—2% for the USSR vs. about 0.5% for the USA. Where did the Soviet space program go wrong? What happened in Moscow and Baykonyr?

The information is available if one cares to look for it, even though TASS is not exactly a Madison Avenue PR organization. Very few people inside, or outside, the aerospace business have openly

These models built to a constant scale ratio of 1 to 100 indicate the progress of booster development in the USSR and the USA. In front is a model of the German A4(V-2 which forms the common heritage point. Left to right we have the USSR Type A Launch Vehicle in the configuration used to launch Sputnik-1; a two-dimensional cardboard cutout of a speculative size and shape of the USSR Type G Launch Vehicle; a scale model of the USA's Saturn-V launch vehicle; and finally a model of the USA's Jupiter-C which launched the first USA unmanned satellite.

(Models and photo by Stine)

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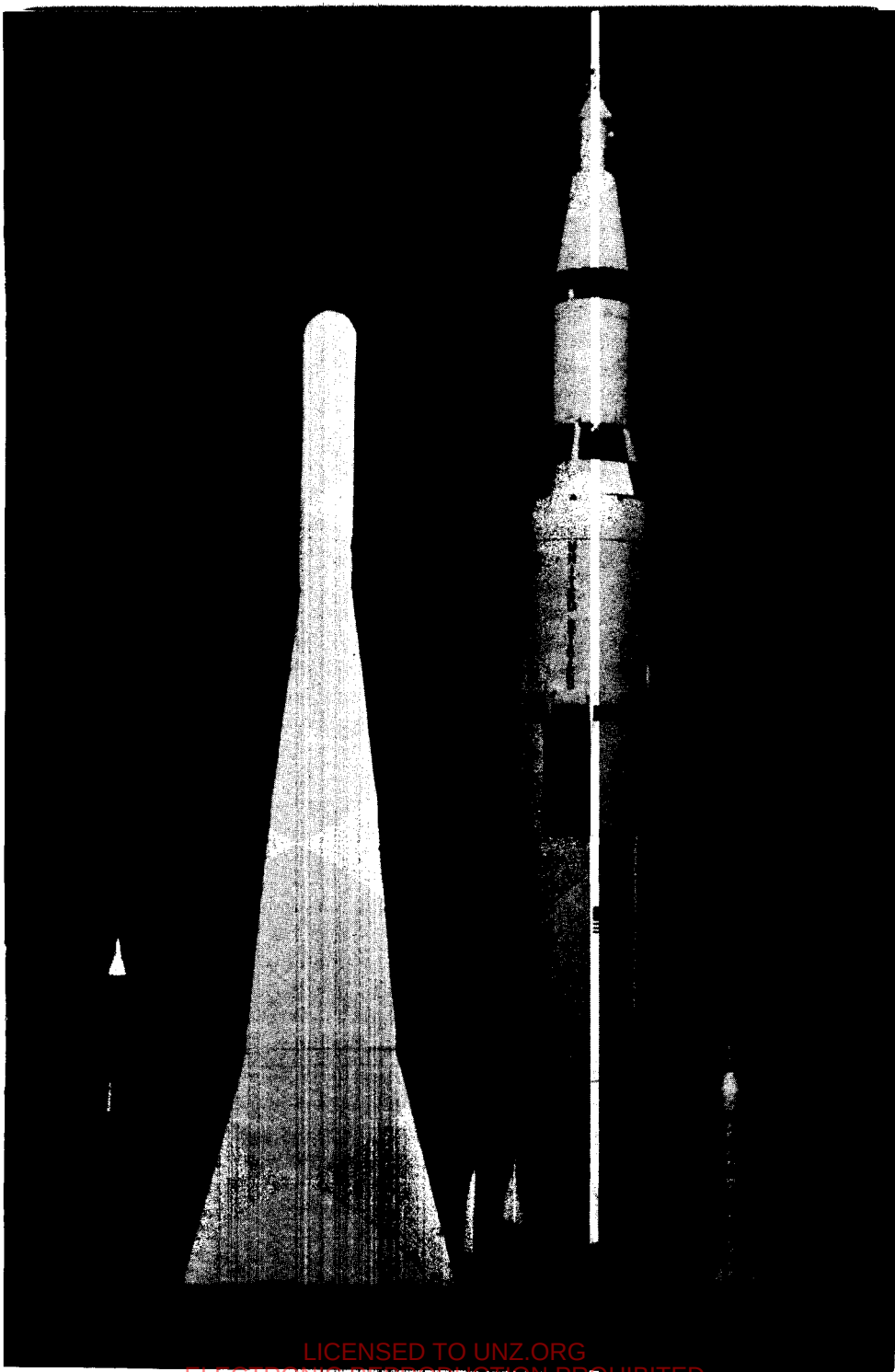

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put two and two together in a report on the Soviet program. Part of this is probably due to the general feeling in the USA, "So what? We beat 'em, didn't we?"

Yes, we did. But it would be helpful for future planning to know why and how. And it always pays to keep one's eyes on the competition, even when winning. In spite of much well-wishing and wishful-thinking, there are military applications of space technology, too. And, since most of the rest of the world has not yet renounced the use of force to achieve political advantage, military applications cannot be ignored. Anybody who believes that there is no military utility in astronautics understands neither astronautics, military history, or world history.

And both sides have assiduously applied astronautics to military advantage to date.

To get a better understanding of what happened to the Soviet lunar landing program, we have to go back to January 1966 when two perhaps-related things occurred.

First was the death of the "chief designer" of the Soviet space program, Sergei Pavlovich Korolev. This man was perhaps the major cog in the program, the driving force behind it, the obviously-charismatic leader whose identity was kept secret from the rest of the world ostensibly to "protect him." Korolev supervised the design and construction of the SS-6 and RD-107 space booster, its RD-119-powered second stage, the sputnik satellites, and the Vostok and Voskhod manned spacecrafts. Korolev died while undergoing surgery for the removal of a tumor, and was buried in the wall of the Kremlin on January 18, 1966.

Newly-appointed Premier Alexei N. Kosygin did not promote anyone into Korolev's position at that time. He was under considerable pressure from military men who felt that the Soviet space program was draining resources away from the urgent missile program, the drive to achieve nuclear parity with the USA, and the defense of the holy motherland against the rising Chinese menace. The Soviet scientists, on the other hand, felt that the Soviet space program wasn't "scientific" enough, that much too great a priority was being given to the lunar race with the USA, that unmanned space probes were being down-graded in favor of engineering-oriented manned flights.

The "short blanket" economy of the USSR caught up with their space program, for finally in early 1966 "the shoulders got cold, so the feet suffered." Kosygin changed the direction of the Soviet pace program to provide greater "commonality" and to combine the lunar landing program with a broader, science-oriented program. With the great engineer Korolev gone, the scientists won their fight.

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Korolev's position and responsibilities were taken over by a Kremlin-appointed committee of space project chiefs who had worked under Korolev and members of the USSR Academy of Sciences. The collective mind of this committee has shown itself historically to be a very poor substitute for the driving will and capability of Sergei P. Korolev.

In one fell swoop, Kosygin conceded the first lunar landing to the USA by his appointment of that committee in January 1966.

The new Soviet space program was spread very thin. It included a Manned Orbiting Platform (MOP), manned circumlunar flights, and manned lunar landings. It was to be carried out with a maximum number of interchangeable, multi-use spacecraft components. Thus, the Soviet engineers proceeded to design their new spacecraft system to provide commonality through use of modules for multi-mission use. The Soviets proceeded to fall prey to that administrative disease resulting in technological atrophy known as "commonality." It is quite likely that the new Soviet spacecraft system—known in the USA as "Soyuz"—is a space-going TFX.

By all indications, the original Soyuz-1 spacecraft weighed about 35,000 pounds. It was intended for Earth-orbiting flights of up to thirty days' duration. To boost this heavy spacecraft into Earth orbit, the Soviets planned to use their SL-12 or "Proton" launch vehicle, referred to in the previous article as the D launch vehicle. However, the actual launch vehicle used for Soyuz-1 was the Type E Launch Vehicle capable of boosting 145,000 pounds maximum into Earth orbit, or sending the 35,000-pound Soyuz to the Moon. The ELV appears to be much smaller than the USA's Saturn-V and does not have the payload capability of a comparable American launch vehicle due to a lower mass fraction and the absence of high-energy upper stages.

To boost the lunar landing version of Soyuz required lobbing about 145,000 pounds to the Moon. So the Soviets planned to build a much larger launch vehicle suitable not only for boosting major MOP components into Earth orbit but also for carrying out the Soviet lunar landing mission. Rumors of this giant vehicle began to appear in the USA in late 1966 and early 1967. Former NASA Administrator James Webb referred to it in congressional testimony. Dubbed the G Launch Vehicle, my own calculations indicated that it was indeed larger than the Saturn-V and was actually more akin to some of the early USA Nova concepts. To boost 450,000 pounds into Earth orbit, or 145,000 pounds to the Moon, would require the GLV to be approximately 270 feet tall, have a base diameter of

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about 75 feet, generate a lift-off thrust of 17,000,000 pounds, and have a gross pad weight of 15,159,000 pounds. Conservative government sources estimate about 10,000,000 pounds of lift-off thrust, but these same sources under-estimated the thrust and lift-off weight of the original A-1 launch vehicle, the Vostok booster. In many cases, too, USA government sources have not done the engineering calculations; I did.

There was a two-year hiatus in the Soviet manned space program following the mission of Voskhod-2 on May 18, 1965. During this down-time, it seems reasonable to assume that (a) work was progressing to man-rate the ELV starting with KOSMOS-110 on February 22, 1966, and (b) construction was going on for the horizontal check-out hangar and large launch complex required for the GLV. The DLV, or SL-12, was the check-out vehicle for the upper stages of the ELV while at the same time boosting a number of lunar unmanned payloads; the ELV was to be the major man-rated workhorse of the program; and the GLV was to be the weight-lifter. There were approximately 9 Kosmos missions during this two-year hiatus, and it is quite likely that they were test flights of the unmanned Soyuz spacecraft.

But the SL-12 got into trouble with its final stage. The Soviets suffered an 80% failure rate with upper stage ignition and stabilization. In spite of this, they must have felt they had them well enough under control to attempt the manned mission of Soyuz-1.

Soyuz-1 was the big mission for the Soviet space program. At that point in time, the USA and the USSR were approximately neck-and-neck on the way to a lunar landing. With the highly experienced Komarov aboard, Soyuz-1 was launched with the ELV on April 23, 1967. It ended up as two objects in a nearly circular orbit—124.9 x 139.2 n.m.—at an inclination of 51.7 degrees.

There was indication from the original wording of the TASS announcement, as well as in the Soviet-watching fraternity, that there would be a rendezvous and docking attempt, or at least a rendezvous, with Soyuz-2 launched a few days later. This never occurred because Soyuz-1 got into big trouble right away. Soyuz-1 was tracked by the USAF Spacetrack radars, and I have heard from several independent sources that both NASA and the USAF knew from that radar track and its signature that Soyuz-1 was tumbling. It has also been widely reported that there were serious communications problems. Both of these could have been caused by faulty attitude and stabilization controls on Soyuz-1.

When Soyuz-1 entered the atmosphere on April 24, 1967, according to TASS the parachute

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shroud lines fouled. This fouling could well have been caused by a wildly-gyrating Soyuz capsule. It resulted in the death of Komarov.

This Soyuz-1 disaster marked the second turning point in the failure of the Soviet lunar landing program.

The Soyuz-1 flight must have hit the Soviet space program as hard, if not harder, than the Apollo-204 fire hit NASA. Some eighteen months elapsed before the Soviets again mounted a manned orbital mission. When they did, with the launch of the unmanned Soyuz-2 on October 25, 1968 followed by Soyuz-3 on October 26, 1967 with Colonel Georgi Beregovoy riding as solo pilot, the Soviets revealed that the boosters used for the mission were the tried-and-proven old A-2LVs that has lofted the Voskhods.

Soyuz-2/Soyuz-3 was probably a repeat of the originally-planned Soyuz-1/Soyuz-2 mission. However, only rendezvous was achieved, and there was no hard-docking in orbit. This was unusual because unmanned hard-docking had been achieved with Kosmos-186 and Kosmos-188 in October of 1967.

Engineering mission planning logic seems to lead to the conclusion that the Soyuz-2/Soyuz-3 mission was the mission with the lowest risk that could possibly have been attempted following the major re-design of the Soyuz spacecraft that resulted from the Soyuz-1 failure. Only one cosmonaut was risked in a mission that had been accomplished in an unmanned mode previously. The most reliable Soviet booster was used. With their limited resources and exploiting existing technology to the limit, the Soviets had shifted to a highly conservative mission operations philosophy.

Failure to hard-dock indicates a possible problem remained with the troublesome attitude control system.

The Soyuz spacecraft must have undergone considerable re-design from the original heavy Soyuz-1. In the first place, the A-2LV has an orbital weight capability of about 15,000 pounds. Since no Soyuz spacecraft at the time of this writing has stayed in orbit more than four days, it seems logical that the Soviet engineers stripped the Soyuz of the thirty-day orbital module to permit it to be lofted by the A-2LV.

When the Soviets revealed the Soyuz spacecraft design, it turned out to be highly modular and similar in some respects to early 1961 Apollo spacecraft modular concepts. From front to rear, the "light" Soyuz spacecraft is made up of three modules. First comes the large, spherical orbital compartment, or mission module, with considerable internal volume and an EVA hatch. A docking mechanism is located in front of this. The

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Soviets did not develop a docking collar and latching mechanism with an integral internal transfer tunnel such as is used in the USA's Apollo; transfer between Soyuz spacecraft must be done with an EVA operation.

Behind the orbital compartment is a dome-shaped re-entry command module capable of carrying three cosmonauts in side-by-side seating. There is a hatch connecting the orbital compartment with the re-entry module permitting inboard transfer between the two modules. There is a large hemispherical ablative heat shield on the aft surface of the re-entry module.

The orbital compartment is located ahead of the re-entry module to preserve the physical integrity of the ablative heat shield. With this arrangement, the Soviet engineers did not have to develop a heat shield with a hatch cut into it such as the USAF did for the Gemini capsule of the defunct MOL program.

Behind the entry module is the service module containing thirty-two high-pressure oxygen and nitrogen bottles and mounting two extendable solar cell panels which provide in-orbit electric power for Soyuz. The use of these extendable solar panels indicates that the Soviets do not have the fuel cell technology necessary for extended orbital or lunar missions.

Even the "light" Soyuz spacecraft is a large machine. When mounted atop the A-2LV with its aerodynamic shroud in place, Soyuz looks like an elephant riding atop a giraffe.

By mid-October 1968, the Soviets had man-rated their Soyuz spacecraft for Earth orbital flight . . . just barely. They knew full well that the USA had scheduled a circumlunar flight for Apollo-8, and they were pushing hard to make the first circumlunar flight using the Soyuz spacecraft the ELV. In early Fall of 1968, it was actually nip-and-tuck as to which nation would accomplish manned circumlunar flight first.

Zond-5 went from Baykonyr with the ELV on September 15, 1968, making an unmanned circumlunar flight and landing in the Indian Ocean. It was a precursor to a manned flight, carrying various biological specimens including turtles, insects, and several packets of plant seeds. On November 10, 1968, Zond-6 was launched with the ELV from Baykonyr, flying around the Moon and landing inside the USSR on November 17, 1968. Again, Zond-6 was an unmanned Soyuz carrying a repeat of the Zond-5 biological experiments.

While all this circumlunar activity was going on, the Soviets proceeded to launch the 37,485-pound Proton-4 with the ELV on November 16, 1968. This indicated either two ELV launch complexes at Bay-

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konyr, or the same sort of rapid pad turn-around time exhibited with the classic ALV.

By the end of November 1968, the Soviets had man-rated their ELV for both Earth orbit and circumlunar manned missions using the Soyuz spacecraft. They were busy preparing for an early December 1968 launch of at least two cosmonauts for a circumlunar flight in Soyuz. They wanted desperately to beat the scheduled Apollo-8 to the Moon.

Something happened. At this time, we don't know exactly what.

A UPI release out of Moscow on December 18,1968 reported that the USSR had officially canceled the manned circumlunar mission "until preparatory research makes the flight safer." This release was published in the New York *Times*.

My speculation is that the Soviet space medicine experts called for the cancellation. They have always been far more concerned about possible radiation hazards in deep space than NASA doctors. They may have flown Proton-4 at the same time that Zond-6 was in translunar flight in order to get comparison baseline data.

Or they could have got into trouble with the ELV again because they have not used the ELV in subsequent Soyuz launches.

So it fell to American astronauts to accomplish Jules Verne's circumlunar forecast almost according to Verne's story details . . . including the size and shape of the spacecraft!

In the meantime, Soviet space planners began to silently concede the strong possibility of the USA's manned lunar landing in 1969, but they prepared to capitalize on any possible USA failure by laying on some space spectaculars of their own which, contrasted to a USA failure, would have looked very good indeed.

The next Soviet manned mission took place in the dead of Russian winter, which indicates that the Soviets have extended their permissible launch environment for manned missions. This may be the reason why they shifted to an orbital inclination of 51 degrees for the Soyuz flights, thus permitting recovery in warmer lower latitudes. Nonetheless, it snows at Baykonyr Cosmodrome, which is located 30 miles east of the Aral Sea at a latitude just shy of 46 degrees. One does not realize how far north this is until he is reminded that Montreal, Canada lies just shy of 46-degrees North.

Soyuz-4 went aloft on January 14, 1969 with Lieutenant colonel Vladimir Shatalov in solo command. He was followed on January 15,1969 by Soyuz-5 carrying Lieutenant colonel Boris V. Volynov and two civilian cosmonauts, Yevgeni Khrunov and Alexei Yeliseyev. The two Soyuz spacecraft docked in orbit, and the cosmonauts proceeded to carry out a sim-

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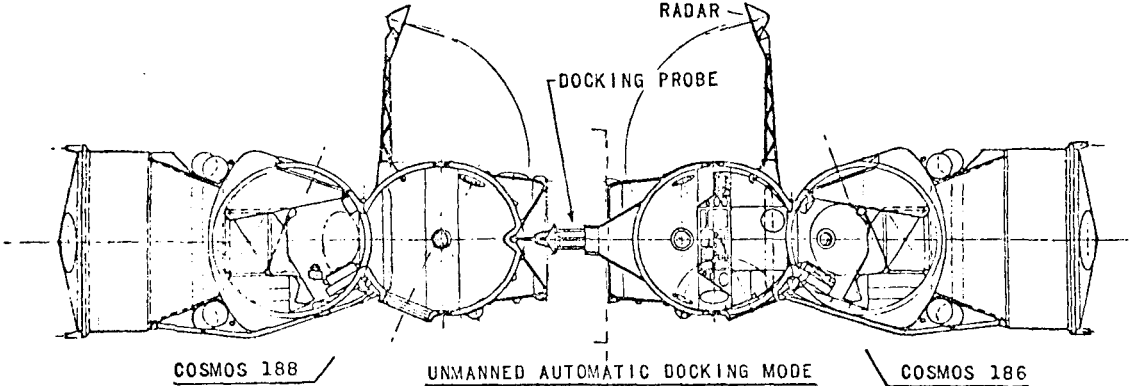
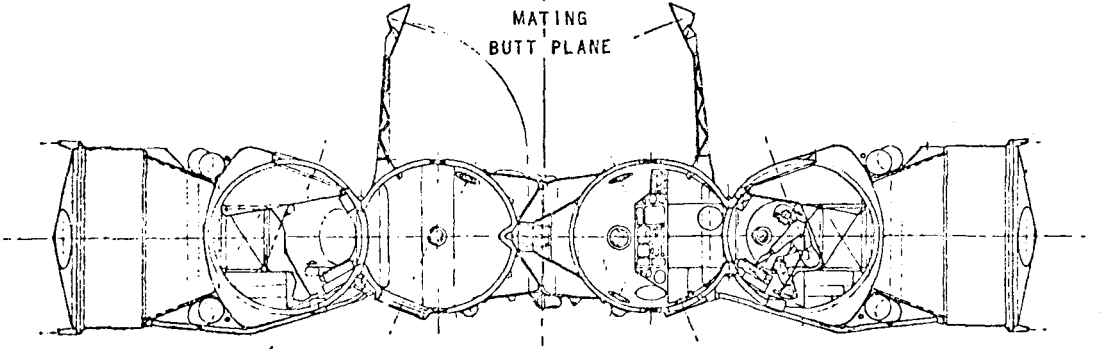


COSMOS 188 — UNMANNED AUTOMATIC DOCKING MODE — COSMOS 186



SOYUZ 2 — AUTOMATIC DOCKING - MANNED BACK-UP MODE — SOYUZ 3
(RENDEZVOUS ONLY,
DOCKING NOT ACHIEVED)

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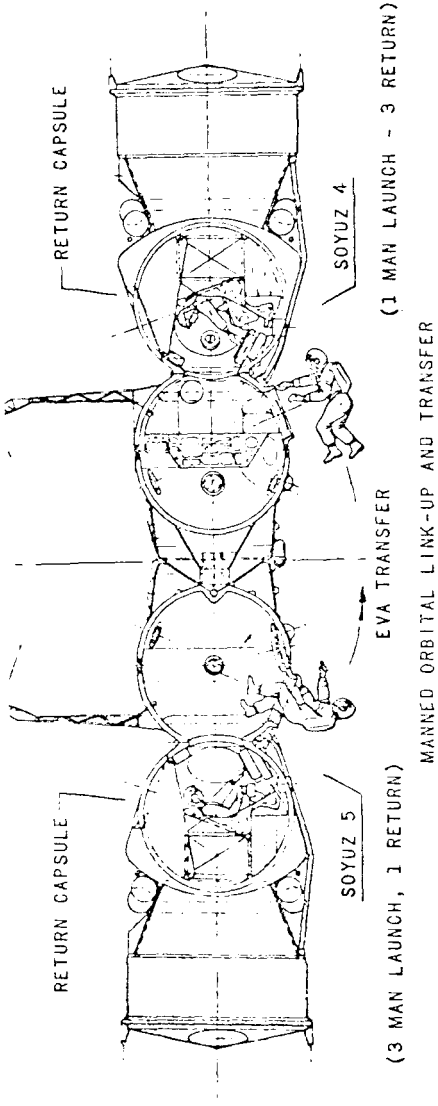

ulated space rescue. Volynov and Yeliseyev donned their EVA spacesuits and then helped Khrunov into his suit as though he were an injured cosmonaut. Yeliseyev and Khrunov then made an EVA transfer to Soyuz-4 and came back to Earth with Shatalov. Soyuz-5 returned with Volynov flying it solo.

Although the USA certainly had the capability for such a simulated space-rescue mission, the Soviets had a very good reason for wanting to perfect space-rescue mission techniques. Had they had such a capability in April 1967, they could have rescued Komarov. After all, the Soviets have had a cosmonaut killed during a mission; the USA has not . . . yet.

Many people were not certain at that point in time—early 1969—that the Soviets were indeed out of the lunar landing race. There were persistent rumors of the giant G Launch Vehicle which was large enough for a direct flight and landing mode of lunar landing mission.

But things were going on inside the USSR that boded ill for the So-

These drawings of the rendezvous and docking of various Soyuz spacecraft on several missions indicates the basic shape of the spacecraft and its internal arrangement. Not shown in the drawings are the extendable solar panels which deploy from the service modules of each Soyuz and provide in-orbit electrical power.

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viet lunar landing program. There was a severe Chinese border crisis, and this pre-empted some of the facilities and personnel of the Baykonyr Cosmodrome while the Strategic Rocket Forces bolstered their own capabilities. There must have been a great deal of launch site shifting and missile re-targeting in the USSR during this period, and these things sapped their limited technical personnel reservoir. Apparently, the "short blanket" economy also extends to trained personnel.

This caused a slippage of the Soyuz-6 mission which might have been originally intended as the circumlunar spacecraft for the aborted December 1968 mission. It was rescheduled to go in April 1969 and re-directed as an Earth orbital flight of up to five days with one cosmonaut. Its purpose might have been to check life-support systems. Because it was the circumlunar version of the Soyuz, it had no docking collar.

In the meantime, the Soyuz-7 and Soyuz-8 mission was beginning to shape up as the most ambitious Soviet space mission yet. It was to be conducted simultaneously with the first orbital launch of the monstrous GLV which would provide a very large 400,000-pound MOP core for the Soyuz spacecraft to dock with. As a result, Soyuz-7 and Soyuz-8 had docking collars designed to mate with the MOP core and not with each other!

This was to be a tricky mission. The first GLV was prepared in its horizontal checkout hangar and transported to the new launch complex in mid-summer 1969. The GLV is probably much heavier than Saturn-V but, because of its larger base diameter, does not stand as tall. Nevertheless, it is a big rocket weighing about 15,159,000 pounds at lift-off.

The GLV blew up on the launch pad.

When a rocket of this size blows up, it makes a sizable bang. You cannot hide an explosion this large.

To get some idea of the magnitude of the explosive effect, one can compare the GLV with the Saturn-V. At Launch Complex 39, Kennedy Space Center, Florida, no one is allowed closer than 3,000 yards to the Saturn-V at lift-off. Calculations show that if Saturn-V blew on the pad, it would throw debris out to a radius of about 3,000 yards. The two launch pads at LC39 are 8,730 feet apart so that if a Saturn-V blows on one pad, it won't damage the second pad. This is important because the Saturn-V, fully loaded, contains 5,775,000 pounds of RP-1, liquid hydrogen, and liquid oxygen . . . plus a few thousand pounds of other assorted rocket propellants that hardly don't matter in comparison. It is possible to calculate the TNT-equivalent of this much propellant going bang.

Although a Saturn-V on the pad amounts to a casing loaded with 2,-

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887 tons of explosive, one must recall that the fuels and oxidizer are separated. It takes time for them to get together and react because they can't all intermix instantaneously. Therefore, NASA experts figure that the TNT-equivalent of the LOX + RP-1 mixture is equal to 10% of the propellant weight. LOX + LH_2 is slightly more energetic, the TNT-equivalent being 60% of the propellant weight. In other words, a Saturn-V doesn't go bang all at once; it doesn't go "high order" where all of the explosive compound reacts with near instantaneity. An explosion is basically a combustion, or burning process, and when the fuel and oxidizer are intimately mixed, it can go like hell. When they are in separate tanks, it takes a few milliseconds longer, and the resultant explosion is nowhere near as "brissant" or shattering. Be that as it may Saturn-V turns out to be a 0.588-kiloton bomb.

The Soviet GLV, if it is anywhere near the size of my calculations relating to propellant weight, and assuming that it is loaded *only* with RP-1 and LOX—no liquid hydrogen—contains 13,663,500 pounds of propellants.

This makes the GLV a 0.683-kiloton bomb.

We know that it went. It was a detectable seismic event. I am told that it was photographed by Nimbus-3, our experimental weather satellite . . . but nobody has shown me the photos yet. Undoubtedly, if it was seen by the very low-resolution sensors of Nimbus-3 which are deliberately down-graded to pick up meteorological data only, it was also seen in great and glorious detail by the various military surveillance satellites whose resolution is marvelous to behold, I am informed. An explosion of this magnitude also creates a detectable electromagnetic disturbance, and I am certain that this was recorded.

Obviously, when the GLV went on the pad, it took the launch complex with it. There are also rumors that some Soviet rocket technicians were also killed and even that a couple of cosmonauts died as a result—the latter unconfirmed.

The GLV explosion has certainly set back the Soviet space program at least two years, possibly even longer. The latest reports indicate that they have not started to rebuild the launch complex. Perhaps the GLV explosion strained the Soviet space program past its breaking point, burdened as it has been with the conflicting requirements of the broad-based program run by a committee in the face of other high Soviet priorities.

In spite of the GLV explosion, or perhaps just before it happened, the Soviets launched Luna-15 with the ELV in mid-July 1969; this was intended to reap any possible political and propaganda advantage from the failure of the Apollo-11

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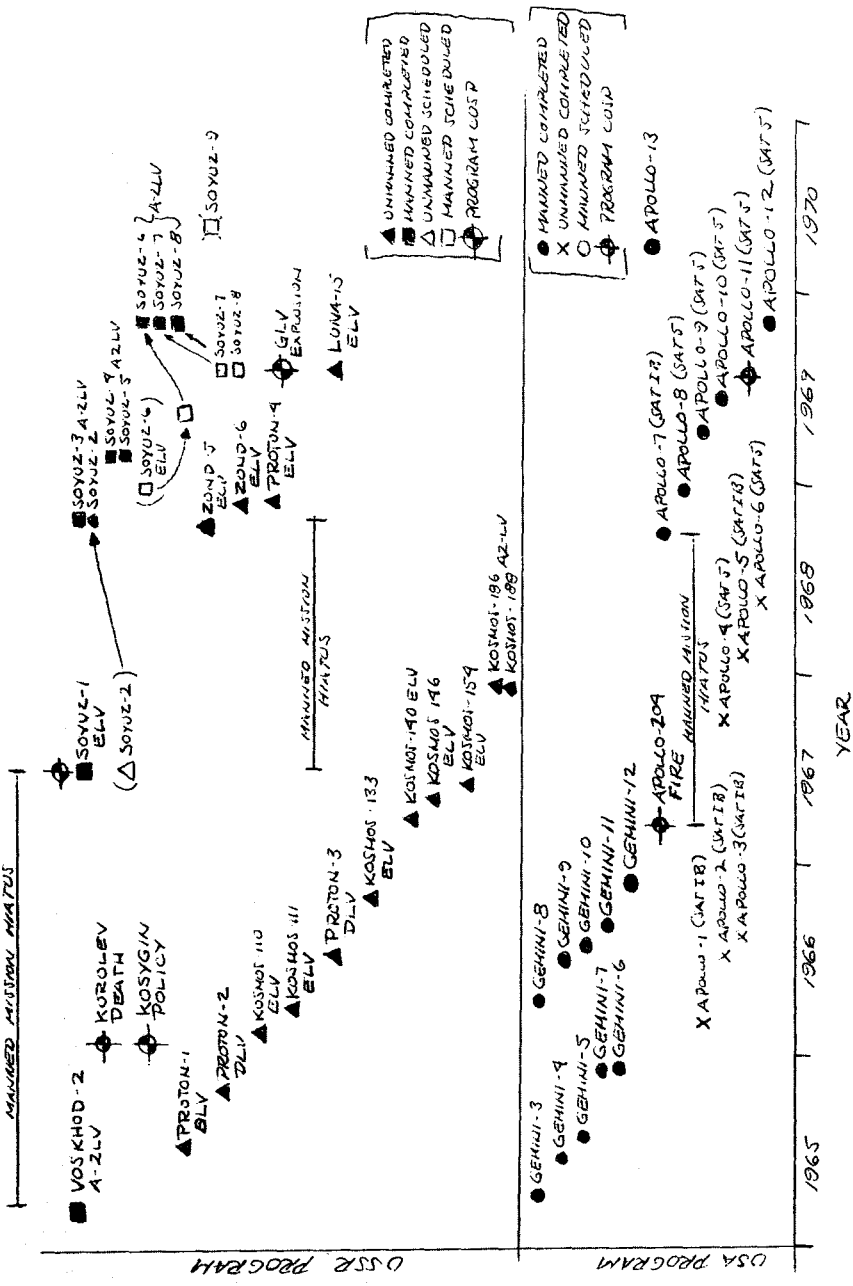

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lunar landing mission. Had Apollo-11 failed to achieve a lunar landing or not succeeded in any way, the Soviets could have pointed to Luna-15 with pride, claiming they were still in the lunar landing race. Some observers believe that the Luna-15 mission was a soft-lander-and-return vehicle scheduled to pick up some lunar soil and bring it back to the USSR. This seems to be refuted by the fact that the Soviet tracking ships had returned to port at the time of the Luna-15 launch. Luna-15 was intended to make a soft lunar landing from lunar orbit. It did achieve orbital changes while around the Moon, but something happened during final approach and it crash-landed in Mare Crisium while the US astronauts were still in Mare Tranquilitatus.

An indication of the severity of the GLV explosion on the progress of the Soviet space program could be seen when the triple Soyuz mission was flown in October 1969. Soyuz-6 finally got off the ground, piloted by Lieutenant colonel Georgi S. Shonin and Valeri N. Kubasov. A day later, the Soviets launched Soyuz-7 with Lieutenant colonel Anatoli V. Filipchenko, Lieutenant colonel Victor V. Gorbatko, and Vladislav N. Volkov. The following day saw Soyuz-8 up with veteran cosmonauts Shatalov of Soyuz-4 and Yeliseyev of Soyuz-5 aboard.

The three spacecraft performed rendezvous and conducted station-keeping activities, but did not dock . . . because they could not. Remember that Soyuz-6 was a circumlunar spacecraft version with no docking collar while Soyuz-7 and Soyuz-8 had docking collars designed to mate with the MOP core intended to be lofted by the GLV. Soyuz-7 and Soyuz-8 maneuvered as though there were an invisible fourth unit up there with them, and this is believed to represent the ill-fated 400,000-pound MOP core. Soyuz-6 may have acted as a stand-by lifeboat.

All in all, it was a rather dis-

This simplified chart compares the USA space program from 1965 to present with the significant flights of the USSR space program. The Scheduled flights of the USSR program noted are speculative since the Soviets do not announce the scheduling on any mission before it happens. Nor do they announce re-schedules. The important thing to note is the long manned mission hiatus in the USSR program that extended essentially from the flight of Voskhod-2 in 1965 through the flights of Soyuz-2 and Soyuz-3 in 1968 save for the one abortive Soyuz-1 mission. In that same time period, the USA's Gemini program was laying the foundations for the up-coming Apollo program which was subsequently delayed by the Apollo-204 fire.

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appointing mission for those who have grown accustomed to seeing each Soviet space mission as a grandiose, pioneering space spectacle.

It was also in indication that the program which was characterized during the early days by the energetic leadership of Korolev had reached a critical point. Space technology has progressed rapidly in the USA, but there are indications that Soviet space technology is trying to exploit old technology far past its limits. Soyuz and its unmanned version have been plagued with attitude-control problems. The Soviet lead in big-booster rockets has not kept pace with the capability of the USA.

Most important, there is every indication that the Soviet space program has not matched the USA program in its use of computers. This is an extremely important point, because none of the Apollo missions could have been carried out without the use of the onboard computers plus the availability of the very large, fast ground-based computers. Apollo-13 would have been a complete disaster without extremely competent computers.

The USA beat the USSR to the Moon by beating the Soviets at their own thing, big boosters, and by incorporating the computer into the spacecraft systems. The USA also beat the USSR by having better management teams.

However, although the race for the Moon is now finished, the race to the planets hasn't really started yet. While it is possible for either the USA, or the USSR, to mount a manned Mars-landing mission by the end of the 1970 decade, it would be exceedingly expensive with the technology of 1970, which is what would have to be used because of the long-lead times involved. (Apollo is based, essentially, on 1961 tehnology.)

The race to Mars will not be a big booster race. Nor does it depend upon propulsion, or computers.

The critical pacing item for manned planetary missions is the closed ecological life-support system.

In this regard, the USA and the USSR are starting about even.

It would be foolish to believe that the USSR has given up in space. There is now considerable criticism in the USSR for losing the Moon to the Americans, criticism which in the open USA society would be as nothing but which in the Soviet Union is exceedingly meaningful.

There is competition, and there will continue to be competition. It's a great thing. Charles Darwin thought very highly of it. It created homo sapiens. It got him off this planet on April 12, 1961 in Vostok-1. It put him on another planet on July 20, 1969. And it will keep him driving outward to the stars. ■

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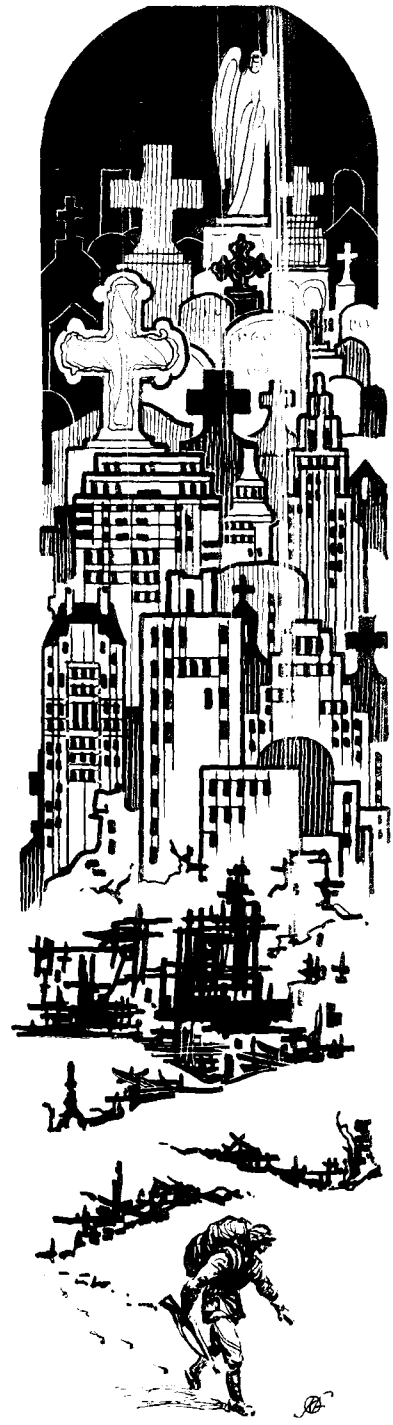
Exodus—Genesis



"This is the way
the world ends . . ."
But only some whimper!

JOHN DALMAS

Illustrated by Kelly Freas

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The Carters were arguing again. The apartments were soundproof of course, but their balcony door was open. Worse than arguing, really, saying ugly vicious things to one another, things embarrassing and unpleasant to overhear. Ted Fralich looked at Eve, his wife. She nodded and they picked up their drinks and left the pleasant July night. Before he stepped in from the balcony he looked again toward the west, where the Front Range, dotted here and there with light clusters, lay black below the star-filled moonless sky.

Wincing at an obscenity, he let the door close behind him.

"I'm glad I married *you*," Eve said.

He grinned at her. "Then I'm just lucky to have a neighbor like that. What in the world are people thinking about, marrying someone they ought to know darn well they won't get along with?"

"Don't you know? What they were thinking about, I mean?"

He sat down across the table from her, grinning again. "Sure I know. But most of us thought about other things, too; some of the time, anyway."

He sliced crumbly yellow cheese, laid it on a rye cracker from a polished wooden bowl, and capped it precisely with another. As he did his vision hazed slightly and a sudden small pain made him frown and touch his forehead.

"What's the matter, dear?"

"I don't know. Nothing, I guess. A sharp little pain hit me just for a moment. I felt it once out on the balcony, but then I blamed it on the Carters."

"Maybe you ought to see a med," Eve said casually, slowly revolving the drinking tube in her eggnog. "Little things like that are supposed to be worth looking into."

"Too much late tridi. What in the world did people do before . . .?" He stopped, showed his teeth, and finished the canape in one more bite.

"Aren't you feeling a little frisky *tonight*?" Eve asked, her eyebrows arched. "I mean, for a man of your age?"

"What d'you mean, my age? I'm not even fifty yet." He reverted to an archaic folkism whose meaning he could not have derived. "Anyway, better make hay while the sun shines."

Eve finished her drink. "Or the stars," she suggested.

His restless movements woke her just before he threw up. In the darkness the violence of his vomiting was shocking, so that her cry of "Ted!" was louder than she meant it to be. He lay there, head hanging over the side of the bed, shuddering. Raising herself on one elbow she reached across for his head, her fingers feeling the sweat on his temple. Fever was obvious.

"You're sick! Really sick!" It

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was something surprising, something no longer common. "Let me call the med. And don't get up," she added, swinging her feet onto the warm floor. "I'll clean it up. You just lay back."

She walked around to his side of the bed, skirting the mess, and punched the med signal on the phone. As she did, Ted lunged upright and got out of bed with abrupt strength. In the dimness she couldn't see his expression, and he said nothing, but she sensed something frighteningly wrong. "Ted?" He lurched out of the bedroom and into the hall, not hearing Eve's muted words into the phone. In the kitchen was a towel dispenser and he began to jerk sheets from it, one after another, rapidly, violently. When he had an armful he pressed a switch, not seeing Eve's frightened face staring at him from the family room. Instantly a burner glowed red on the stove and he thrust the towels violently against it, glaring at them as they began to burn in his hands.

"TED!"

Eve's scream and clutching hands failed to reach him. Knocking her aside was inadvertent, trivial, as he moved about the room, thrusting burning sheets of paper among cushions, into the magazine rack and bookshelves, enormously intent, Eve following him, snatching at the blazing towels. He opened the door, pajamas on fire, strewing burning remnants on the floor, staggering now, and collapsed in flames before the elevator.

It had been a shocking day, shocking and frightening, and as he started across the shady mall his consciousness was turned inward, bypassing the eye-foot circuit that carried him among the other pedestrians. *Considering what most things are made of,* Joe thought, *you wouldn't believe so many things could burn. But then, the human body is seventy percent water.* He'd seen too much today. Skin blistered, split, charred. He'd been a med tech for twelve years, but still had lost his breakfast and had had no heart for lunch.

He sucked a deep breath and exhaled loudly. *They'd have died anyway,* he thought. The meds had all agreed on that. Whatever it was, it killed quickly, sometimes too quickly for the victims to find fire. He began to look around again as he walked along the resilient grass-edged walk, seeing the preoccupation in the faces he passed, feeling more like a crematory worker than a med tech. He wondered if he smelled.

He needed something before he could go upstairs and talk to Karen. He felt tense and snappish. And she'd be all bent out of shape—probably been watching the news on tridi all day.

The lounge on the ground floor usually was dark, with the cube volume low, patronized almost en-

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tirely by people who lived in the building. The door slid back at his touch. Ordinarily there weren't many customers this early, and he felt a moment's irritation when he saw that most of the booths were occupied, but it was even quieter than usual. All faces were turned toward the cube, while the sole waitress scurried softly about with her tray, trying not to block anyone's view.

The face in the cube was famous and calm, but less relaxed than usual. "The first cases appeared yesterday afternoon in several parts of the world, the very first apparently in Brussels at about 1430 Eastern Time." He winced briefly and continued. "By midnight numerous cases were being reported from almost every country and have continued to appear at an increasing rate. The remarkably simultaneous worldwide appearance of the outbreak suggests two things particularly: first, that the disease has an incubation period of at least several days; second, that people infected with the disease can transmit it from very early in the incubation period, well before any symptoms occur. So there seems to be little purpose in trying to isolate yourself; if you're susceptible you've probably been inoculated already."

A man slid into the booth across from Joe, a familiar face without a name, nodding apologetically before turning his eyes toward the cube. *If you're susceptible!* The thought shocked. *How many? Ten percent? Fifty? Ninety?*

"The World Medical Bureau headquarters in Zurich reports that the virus was isolated at 0610 Eastern Time and that the polynucleotides have been identified. They are proceeding toward a cure. Shuttles and first-priority traffic clearance have been set up for immediate distribution of medicine as soon as one is developed. All . . ."

The commentator frowned and pressed his fingertips above his eyes, then turned and gestured urgently, and for a moment the view lost resolution. When it sharpened again a different face looked out at them, picking up without missing a line. "All interdistrict transportation has been halted except for absolute necessities, to assure quickest possible deliveries."

Joe got up, drifting toward the door. Proceeding toward a cure! Even if they developed one quickly—and there must be an awesome assemblage of talent working on it—how much of the stuff would they need? How fast could they make it? How many people were susceptible? He walked unseeingly through the lobby and stepped into an elevator capsule. How many people were susceptible? *Because that's how many were likely to die.*

The apartment door opened at his familiar touch, and his follicles crawled, his hair bristling.

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He couldn't see Karen, but he could hear her vomiting.

Denver's skies hadn't seen smoke, or smog, for more than a century; not since the power beams had been developed and the solar power stations orbited. Now, standing on the roof garden, Dave could smell stale smoke, faintly with the smell of putrefaction. *Even up here with a brisk breeze blowing,* he thought with dismay. Leaning against the polished pink balustrade he looked out and down. Denver stretched in every direction—groves and lines and arcs of leafy trees and square miles of grass—a pattern of "villages," tall buildings arranged in separated circles and ovals. Dave was a floral arranger, sensitive and alert to patterns, colors, contrasts, but now his eyes saw without seeing.

For a week he'd holed up, waiting to die. The first morning of the fires and the dying had been exciting, spiced with the thrill of fear, and they'd been busy with a rush of orders. But they'd kept the cube on, listening to each news program and bulletin. By afternoon the excitement had dried up and the thrill of fear had become dread. After work he'd gone straight upstairs to find Helena in a daze, almost catatonic, and little Trissy locked in the bathroom, dead. It had been up to him to call the police and have the body removed, and it took them more than an hour to get there. They'd seemed harried and brusque. The next morning Vincy had gone down to nursery school and they hadn't seen him again. And when Dave had called, a man answered instead of Mrs. Haugen; he didn't know anything but promised to call back.

Sometime during the second night Helena had gone into the bathroom and cut her throat.

Cut her throat! He turned and weakly, kicked the massive planter where automatic sprinklers were bathing the plants with mist that blew eastward in the breeze. *She might have lived, like me! We might still have been together!*

Positive emotional feedback had always been weak in Dave. This was partly a function of a skillfully engineered social-educational system that aimed at producing calm citizens, but in him it was also partly inherent. So his anguish evaporated quickly. He felt pretty sure now that he wasn't going to die. If he'd been going to die, it would have happened already. Two days before, from the air-conditioned shelter of the apartment, he'd tried phoning everyone he knew, and then started through the directory beginning with Aakhus. And hadn't had one answer. Even the cube had been blank for three days—no, four. The day before he'd heard the last siren and seen the police ambulance crash into the athletic field.

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He looked down at the oval below, sights registering now, seeing the empty benches, and swings hanging quietly in the lovely greenness where swollen bodies lay. Each morning he wanted to go down to the shop and work with the flowers, but he couldn't face the bodies and the stench. And there were no people to want flowers. His eyes pinched shut and hot tears squeezed through swollen lids as he dropped to his knees in the spongy turf, his face buried in his hands, the granite planter supporting him.

For a minute or two he knelt there, utterly forlorn and hopeless. *If she just hadn't killed herself. Am I the only one? Am I all alone?* Suddenly he stood up and leaned over the balustrade, looking downward, down at the grassy oval fifteen stories below, down at the small figure walking slowly across the mall.

Without the laughter and calls of playing children, without the soft but never-ending sound of traffic overhead, he had heard her lonely call for help. He shouted once—he couldn't have remembered ever shouting before—turned, and ran to the elevator. In less than three minutes they were looking embarrassedly at one another across twenty meters of lawn, and he was glad he hadn't stopped shaving.

Doris moved in with him. Her husband had set fire to their apartment and it was smelly and dirty.

At first they stayed inside, where they didn't have to see things and the air-conditioning lessened the stench. The intake was above the roof, and the air it drew was as tolerable as they would find in the city. They'd sleep late, shower and dress, and eat sparingly in order to postpone the inevitable trip to the dispensall on the ground floor. And they read a lot. Dave started to grow a Vandyke, explaining that the patriarch of the new human race should be bearded. He said it to be funny, but then realized with a little surprise that he really felt that way.

They had intended to check off each day on the calendar, so they wouldn't lose track of what day it was, but twice they couldn't decide whether they'd marked it or not. It appeared to be about their eighth day together when hunger forced them down to the dispensall.

The first part wasn't as bad as they'd feared. Mr. Contreras still lay diagonally across the hall, his face turned nearly black. But he'd deflated a lot and the smell wasn't nearly as bad as when they'd seen him last. Mold was spreading on his clothes. Dave wished there was someone to drag Mr. Contreras away.

Riding down in the elevator capsule it occurred to him that he'd always intended to read "Les Miserables," so they decided to walk

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across the mall to the library before getting groceries. He hadn't realized how good it would feel to get outdoors again. It was a clear pleasant morning. But the lawn disturbed him; it needed cutting badly. It was long enough to interfere with the proper functioning of the sprinklers, and in places was turning yellow from lack of water. Apparently it hadn't rained for quite a while; they'd kept the wall opaqued and had lost track. The petunia beds were lovely though, but they wouldn't stay that way long if someone didn't pull the little tree seedlings out of them. He wasn't sure what kind of trees they were, but they had sprung up thickly. The leaves looked like elm. Elms were numerous on the mall and usually dropped a lot of seed.

A lot of people had gone outside to wander under the trees and sky during the final days. Their bodies had collapsed inside their clothes, and the skin had dried on their skulls. White bone showed, and the smell was gone. And the flies were gone, too. It occurred to him that the insects must be the reason the people outdoors had decayed so much faster than Mr. Contreras.

The library office was empty. There wasn't even a body inside. He spoke carefully into one of the order phones, "'Les Miserables,' by Victor Hugo." He stumbled over the title, realizing as he said it that he had little idea of how it should be pronounced, then sat down hopefully to wait, looking at an article about late summer camping in the Weminuche Wilderness. He'd almost gone there with friends once, but someone had told him about the steep trails and cold rains, and he'd changed his mind.

Doris had picked up a magazine about cube stars, he noticed.

Soon a bell rang and he realized there was no one to wait on them, or register their loans. Self-consciously he put his ID away and walked through the little swinging half door to get them himself. The fat one was "Les Miserables" all right. Apparently the book center servos were not too fastidious about pronunciation.

Crossing the shaggy mall again they stopped by a splashing fountain to watch the water. He'd been afraid the goldfish might all be starved, but they weren't. Sitting still, watching, they heard the voice before they were seen. A heavy-set man was wandering across the mall in their general direction. He didn't even go around bodies, just stepped over them, and there was something frightening about him. Without saying a word they both lowered themselves slowly behind the fountain.

At that he passed so near that Dave wondered they weren't seen. Afterward he wasn't sure they'd have been seen if they'd been standing up. The man walked slowly. His course was irregular, but he stared straight ahead as if

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he were going somewhere very specific. His filthy bristle-jawed face worked, and from his mouth curses flowed: obscenities and ugliness and horrible threats, in a flat monotone, neither loudly nor softly but with an incredible speed at the very limit of understanding—as rapidly as a human tongue could articulate.

After that they didn't go out again for five or six days. Then they walked almost daily for a few weeks, without seeing anyone.

Like most people, they'd had a lot of instruction in art, and gradually spent more and more time painting, using memory, imagination, and photos from magazines as models. Their walks became infrequent. Doris painted people mostly, with painstaking care, and sometimes cried, but he preferred to paint scenery and gardens. He'd set the easels in front of the outer wall, and when they wanted to paint just pressed the transparence switch to let the daylight in.

In early November the weather became cloudy and wet. Mist and drizzle blew against the wall, punctuated now and then with rain showers, and he was trying to capture the subtle variations of grays in the overcast.

"I'm hungry," Doris said.

Since becoming pregnant she is always hungry, Dave thought, *and she is getting fat. Just plain fat.* He'd never liked to exercise, himself, but maybe he could talk her into going downstairs to the gymnasium and they could both work out. He peered critically at the canvas, then out of the window, then at the canvas again. "Get something to eat, then."

"I want milk and fried eggs and bacon."

He looked at her, chagrined. For some reason, during the last several days the milk dispenser had refused to work—for either of them. "You'd better try something else."

"But I don't want something else."

He stood, frustrated, helpless.

"Let's go to another building," she said. "Maybe they'll have milk there."

He didn't think so. He suspected that all the buildings in this village were serviced by the same master food servo, though he wasn't sure. He'd never worried about things like that. "But it's raining," he said.

"Lots of people like to walk in the rain. They do it for pleasure. And we haven't walked for days now."

He didn't feel like correcting her tenses, and maybe it would do them good. "All right, I'll get slickers." He found Helena's, gave it to Doris, and they left.

The rain itself, pattering on the slicker hood, didn't feel bad, but the air was cold and the wind raw, and some snowflakes were coming

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down with the rain. He wished he'd refused to come out. They tried the nearest building but there was no milk, and then another with the same result. He told her what he suspected about a master servo for the whole village.

But she insisted on trying one more. That's how they found the asthmatic. He was in the lobby, kneeling on the floor, his head and forearms resting on an arm of a partly burned out sofa. They stood just inside the entrance, staring at him, and at first they thought he didn't know they were there, even though they'd been talking when they walked in. They could hear him breathing frighteningly against the silence. A short gusty exhalation, hoarse, almost a grunt, as if it was very hard to force the air out. Then gasp in, wheezing. Then, slowly, laboriously, leaning his hands on the sofa, he pushed himself up, while they stared at the thin unfolding body.

"I can't get any more pills," he whispered. "Not here and not where I live." The words jerked out slowly, broken by small painful breaths. "I put my prescription punch card in the slot, but nothing comes out." His head and shoulders rose and sagged after the effort.

Doris stepped hesitantly up to him, almost touching the man with her outstretched hand. "Can we help you?"

For the first time Dave felt real love for her.

The man shook his head slowly, twice, as if that was all he had strength for, but then, surprisingly, he chuckled slightly. "Make the sun come out."

The humor shook David as much as the evident suffering. He'd seldom seen a really sick person before, not even during the Death. People hadn't really got sick then. They'd just sort of frenzied and died. And he'd never seen an acute asthma attack before, or even a mild one.

"Why don't you come with us to our place?" he heard himself asking. "At least we can take care of you."

The sick man shuffled slowly along with them, coughing occasionally in short weak spasms that sometimes ended with a retch and left him trembling. He stopped often to lean on dripping trees, and it took a long time to get to their apartment with him. Then they learned he couldn't lie down—not and breathe. He sat slumped while they talked. He said something now and then, just enough to show them that he was listening and appreciated it.

They went to bed early, exhausted, closing their bedroom door so they wouldn't hear the horrid sounds of his breathing.

In the morning he was gone. They quickly checked the bathroom and looked in the hall. After that they rode a capsule down. He lay in the lobby, face down in his

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own blood. His right arm was folded awkwardly under him, but the open hand showed with a kitchen knife beside it.

"Why did he do it?" Doris asked.

David looked at her, surprised. "Didn't you hear what he sounded like?"

"I didn't mean why did he kill himself. I meant, why did he come down here to the lobby to do it? It must have been hard, the way he was."

He stared at the crumpled body, suddenly understanding. "He didn't want to be any trouble to us, I guess."

The rest of the day they drank. They were in reasonable practice, so they actually got to bed instead of passing out on the floor. It was cold when Dave awoke. He sat up and the pain hit him in the forehead, deep and high up. For a breathtaking moment he was afraid, afraid that the plague had hit him after all, but then he knew it was the whiskey. Slowly and carefully he swung his legs out of bed, hoping he wouldn't be sick. The night light was out. Strange. Cold. It registered then. He was cold! He'd never been cold indoors before in his life, and he had all his clothes on. Slowly, unsteadily, he straightened his legs and stood. The wall switch, when he found it, gave no light either, and fear began to well up in him.

Shivering, hands out in the absolute darkness, he felt his way into the living room and groped around until he pushed the transparence switch. Nothing happened. Moving more quickly now he stepped to the balcony doors and pushed.

The cold would have been shocking except that his mind was wholly held by what he saw. It was beautiful and it laid icy hands on his heart. There was not a light anywhere except in the sky, the cold sky, swept clear of clouds and breathtaking with stars. He'd never seen the city dark. On every night lights had shown, sidewalk lights, lights from the roof gardens, lights through the open doors of balconies.

He was aware that Doris was standing behind him looking past his shoulder, hardly breathing. "What's happened?" she whispered.

"The power is gone, and the lights and the heat and the food," he said simply. "It's all gone. And I don't know what we'll do."

Katey pulled the lever and the loader tipped its last scoop of manure into the compost pit. Then she backed, and turned it toward the gateway, two tubular posts standing in a line of nothing visible. As the bright red tractor rolled across the firmly bound soil, steers and heifers backed away in vague semi-alarm at the commonplace activity. When the tractor reached the gate the field broke

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between the posts, to snap back into existence when it had passed through.

A lot of nice beef, she thought bleakly as she wheeled past the neat green lawn and into the equipment shed.

She walked to the house, passing the two small mounds in the backyard, the sods neatly replaced on them. The unfelt fly screen let her into the house and closed behind her. Scanning the contents of the food cabinet she decided (1) that strawberry shortcake would make a nice dessert, and (2) that she'd better get some more shortcakes when she went into town. Pete would have to go in with her—at least the first time.

Passing the tube she almost reached out to turn it on, forgetting for a moment. Instead she picked up a magazine. There hadn't been a broadcast for three days, and the last they'd heard it sounded as if everyone else in the world was dying. For all she knew, Pete and she were the only living people in the world.

Occasionally she looked away from her page to the clock, at first casually but later nervously. For an hour she forced herself to sit there, then finally got up and went outdoors. There she calmed. The air was still. Afternoon thunderheads were building up over the Front Range, as they usually did this time of year, and she could see distant snowfields glinting white. But here on the plain the sun shone down hotly among the dark shiny-leaved cottonwoods, the air humid from irrigation ditches and moist soil, and pungent from the compost pit.

She stood staring across at the equipment shed, her nails pressed into the heels of her hands, her face stiff. She couldn't decide what machine to take. The manure loader seemed like the only one feasible but she couldn't make up her mind to use it.

So she went back in the house and lay down for a while. She didn't sleep but was conscious only in a sense of the word.

Distant thunder got her on her feet again; it was 1430 and there was no more doubt in her. Mechanically she went out, got on the manure loader, and drove out of the yard. The road was dirt but not dusty, a shady green tunnel under the arched branches of huge cottonwoods.

To her right a gap opened in the line of trees. The loader bounced softly on its fat tires and shock absorbers as she turned off across the covered concrete mainline canal and into the corn field. Once she'd passed the row of trees she could see the rig, with its big tank of virus suspension, its spray booms like tubular wings spread wide. It was stopped at the end of the field and she turned the loader toward it, carefully skirting the outside row of knee-high corn, until she

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saw him lying in the dark soft loam.

She got down, limbs wooden, mind wooden, and rolled Pete into the loader, oblivious of the flies that swarmed buzzing up at the disturbance. Then she climbed back on, raised the loader, and turned the tractor back toward the gap in the cottonwoods.

She parked in the yard and got a spade. Carefully she dug up the sods from a long rectangle of green lawn, and carefully she laid them in a pile at one side. Then with the back hoe she dug a pit. When it was four feet deep she turned the tractor and tipped the loader; Pete's body fell in heavily. At last she leaned against the big steering wheel and cried bitterly, loud wracking sobs, for several minutes. When she was spent she lowered the loader to push dirt into the hole and tamp it. With the spade she threw the last of the soil on the top, patted it down, and carefully laid the sods back on. Then, with the hose, she watered it, fastidiously washing away the soil that she had not been able to scrape up with the spade.

When it was finished it looked as nice as the two smaller mounds nearby.

Finally she put the tractor away, bathed, and put on clean jeans, blouse and socks. The last thing she did before leaving was turn off the feedlot fence. Then she drove the pickup down the road toward Sheldon, riding smoothly on a cushion of air.

From the broad swell of land above Sheldon the town looked just as it always had, like a dark irregular open woodland, with elms, silver maples and cottonwoods lining the streets and standing over the houses. She saw distant red, blue and green roofs, glimpses of walls, and the skyscraper grain elevators.

But close up it looked different. Most older homes had burned to the ground, browning the foliage of the nearby trees. The lignoid and fiber building board of newer homes was strongly fire retardant, but in many of them the windows were blackened eyes.

And here and there on pavement and lawns lay bodies, some bloated, some already shrinking. She was careful not to pass over any of them, or let her eyes stop on any.

Even living next to a feedlot was no preparation for the stench.

Slowly she began to circle through the streets. Birds chirped and sang. Magpies chattered, and rose up from bodies as she approached. Turning a corner she found three buzzards at a meal. They were too heavy to fly and hopped away grotesquely while she stopped and threw up through a hastily opened door. When she saw a pack of dogs worrying something beside a porch she broke and be-

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gan to blow her horn, holding it down as she accelerated away from the place.

She hurled out of town, past the lumberyard, a shrill trumpet of fleeing sound. She had driven three miles before she was aware of the pursuing pickup in her rear-view mirror. Briefly she kept her speed, then slowed, and as it drew closer she pulled off beside the road and settled to the ground.

She stood beside the door and watched her follower stop and get out of his cab. They looked at one another for a minute across ten meters of silence and she was surprised and embarrassed at her thoughts. He was ten or fifteen centimeters shorter than Pete and maybe thirty kilos lighter.

He took the first step, speaking as he approached her. "My but I'm glad to see someone." The words started slowly but then speeded up. "I wouldn't have known you were around if you hadn't blown your horn. That was good thinking to blow your horn. I was at the lumberyard when I heard it, loading supplies to build a cabin in the foothills and—" He stopped suddenly. "I'm sorry. A little overwrought, I guess. My name is Art Feldman. I'm. I was, a history teacher at Sheldon High."

"I'm Katherine Maustaler." She paused. "Build a cabin? When you can live in any house or cabin you want?"

"None of them will be livable very long," he answered. "When the power goes off you won't be able to heat one of them. Do you realize there's probably not a building in Boulder County that can be heated except by beamed power? Unless you want to count fireplaces, and they're more decorative than effective in a big living room. And they take a lot of wood for serious heating. I want to build a small snug shack in the foothills, where there's lots of timber for fuel."

Of course, she thought. *With no one maintaining the solar power stations or beam relays, one by one things would go wrong until all the auxiliaries and bypasses were at capacity, and after that nothing would run anymore, heaters, machinery, nothing.*

"I'd like to help you," she said.

He looked at her without saying anything, suddenly solemn, a little as if he might cry. Then he held out his hand and led her around to the righthand door of his pickup.

"Would you like to see our control room?"

His father held out his big hand and they floated down the companionway together into the large hemispheric nerve center of the spaceship. People stood, or sat, silently at instruments, their faces vague. In the control room the pseudo-grav was kept at Earth normal, and Jim suddenly realized he had to go to the latrine.

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A man sat at a computer console, his hands resting relaxed in front of a large keyboard. "Jimmy, this is Commander Medgar Hamilton, my navigating officer. Ed, this is my son Jimmy."

The strong brown face turned briefly, long enough to say, "Glad to meet you, Jim."

Commander Medgar Evers Hamilton! Who'd been skipper of the *Leif Erickson*, the first deep-spaceship. He looked just like his picture in the history book. Jim looked at himself then, dirty, unshaven, and wished he'd cleaned up before coming here.

". . . Last surviving human being on Earth. It's lucky for him and for his mother and me that he had the presence of mind to go to the spaceport and wait for a ship."

He *had* to find the latrine. He'd seen a sign somewhere along the companionway, MEN. Then he saw it down a little alley behind some garbage cans and pushed open the door. It was hard to open, and when he pushed it wide enough he saw that trash had been piled behind it. It gave him a sinking feeling.

The latrine was large, even had shower stalls, and everything was unpainted galvanized iron, spotted with rust, streaked and fouled. He was shocked. He wandered up and down the innumerable aisles looking for a place to use, but everything was too filthy even to approach.

James Carrigan woke up and it was daylight. He hated a dream like that. The skin of his face told him it was cold, and he considered briefly going to sleep again but he knew he couldn't. With a groan he crawled, bleak and uncomfortable, from under the layers of carpeting and drapes that served him as bedding. And his dad had been in it somehow, but he couldn't remember just how. He'd died when Jim was twelve, but after twenty-nine years he still dreamed about him now and then.

He shuffled to the bank of soft chairs in front of the viewing windows and slowly sat down. They looked out over the pad area, a great concrete field dotted with storm drains and studded irregularly with a few abandoned asteroid tugs. Yesterday's skim of snow was starting to melt in the morning sun. He remembered what he'd promised himself yesterday when he'd finished the last two bars from the last candy machine. But he feared leaving the terminal. Someday a ship was sure to come back from deep space. But there *weren't many deep-spaceships*—three, maybe—and he was afraid to be gone. Afraid he'd miss it.

The thought flashed into his consciousness that maybe the plague had wiped out the ships' crews, that there'd be no more ships, and as quickly he loosed other thoughts to tumble through his mind, like static. He knew the

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devil was there but he refused to look at him.

Today he'd have to find some food though. A ship would do him no good if he was dead of starvation. He should have hunted yesterday; no ship had come yesterday.

First, though, maybe he should scoop some snow together to melt, before it was all gone. The trash receptacle he kept his water in was almost empty. He rose slowly and walked over to it. More than he'd thought. He shook the plastic container, peering into it. Frozen solid. When he got back he'd have to build another fire and melt it.

The most practical kind of food was beef, he'd decided. He got his heavy ball peen hammer. He'd never be able to catch a jack rabbit, but he ought to be able to just walk up to a cow and hit her with all his strength. Right on the forehead ought to do it. Passing through the glass doors he tried to remember the story about a traveling salesman who ran down a jack rabbit.

Coming out of the shadow of the building he was surprised at how warm the sun felt. He wadded a small ball of snow and let it melt in his mouth for breakfast. Then he started across the pad area, and after a few minutes could see the tall chain link fence on the far side. It surrounded the whole spaceport, and as he walked toward it he looked in each direction for a gate. His legs felt weak and he hoped there would be one on this side; the main gate, through which he'd come, was way around on the east side. For a moment he cursed himself for not having thought about that when he'd started. But then he saw one, hurried to it in spite of his weariness, and found it ajar, its electromagnetic lock dead.

The sunshine was transient. As he walked westward across the flat, gray clouds hid it. The crisp tawny grama and buffalo grass were frozen humps beneath his feet, causing him to stumble occasionally, but even so he began to feel better, stronger, from the unfamiliar activity. He thought to raise his eyes from the ground and look around for cattle. He saw manure; old dry chips and some not very old. Ahead in the distance lay the mighty Front Range, rearing tilted white plains above timberline, hiding its rugged peaks in clouds. Behind him the terminal building lay farther away than he expected, perhaps two and a half kilometers. The distance sent a pang of fear through him.

Ahead was a barbed wire stock fence. When he came to it he stopped to rest, standing so he wouldn't have to get up again. He found a place where the top wire was low and a little slack, and pushing down on it swung first one long leg over and then the other.

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A barb caught in the sleeve of his outermost shirt and carefully, shivering, he disengaged it. His brief feeling of strength and well-being had evaporated.

A kilometer farther the ground sloped down moderately into a shallow rounded draw; when he'd reached the bottom and started up the other side he tired badly, and actually began to sweat a little. At the top he stopped to rest, breathing heavily, head down. But a wind had begun to blow across the bare grassland from the east and he was quickly cold. Just ahead was another draw, deeper and steeper, and as he crossed the curvature of the hilltop he saw the cattle grazing along the lower slopes and in the bottom. About ten; he didn't stop to count them. Slowly, tensely he walked down, gripping the hammer tightly, weakness forgotten. As he came nearer they raised their faces to stare at him, and several took tentative sidling steps away from his line of approach. Then one old range cow turned away, trotting smoothly, and they all began to run, breaking into a rocking gallop as the scarecrow figure charged after them. Their strong haunches carried them easily up the opposite slope, or up the draw or down it as they scattered.

Carrigan rushed on after the nearest one, across the rounded bottom and a little way up the other side, until the cruel pull of gravity burned his thighs and lungs. Stopping, he almost fell, then let himself drop where the sun had thawed the snow away and left a skin of mud beneath the thin grass, a thin grease atop a frozen base. He sat there for a while, anger and frustration gone with the sudden burst of energy, replaced by dull resignation.

"Ah, bay, tsay, d' Katt schlaft in d' Schnee. D' Schnee geh' fit un' d' Katt schlaft in d' Drit," he recited aloud, looking at the ground. Or something like that. "The snow melted and the cat slept in the mud." It must have been thirty-five years ago that . . . what was that kid's name? Parents used to talk German.

Slowly he got up again and forced himself on up the hill. From the top the land sloped away toward a valley maybe two kilometers farther, where cottonwoods grew along a creek. Beyond the creek the foothills started with a long hogback, with ridges rising behind it in a series of increasing height. There was timber on the north-facing slopes. Several of the cattle he'd chased were grazing on the dead grass not far below, their jaws pausing as they looked up at him.

He'd been foolish to believe he could just walk up and kill one, he realized. He looked back at the terminal building, small in the distance, and shivered hard, uncontrollably. Snowflakes began to ride

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the growing wind. Suddenly anxious he got up and began to walk down the hill. Where the ground turned up again he rested, tired and weak, gathering his will, dreading the climb, then plodded slowly upward, stopping every four or five steps. By the time he had hauled himself reluctantly to the top the snow had thickened, and the wind, blowing hard, bit into him when he emerged from the partial shelter of the draw. The ground was white again, and the stems of grama grass blew in the wind. Shielding his body with his crossed arms he started dully down the next slope.

Down into the lesser draw, and slowly up, stumbling now, with only flats between himself and the shelter of the terminal. He lowered his head into the wind and pushed on, the snow halfway to the tops of his shoes already. His eyes were fixed a meter or two in front of his feet, but blankly, and he walked right into the barbed wire, not seeing it, the barbs puncturing his trousers and skin. He recoiled and fell backward into the snow from the unexpected obstacle and pain, a tight whining moan welling from his throat. Eyes squinting, hugging his slightly injured legs to him, he swore softly, almost sobbing, a wave of self-pity washing over him. He didn't even get up at first when the snow began to soak through the seat of his two pairs of pants.

Finally he arose, shivering again, and looked across the fence into the blowing snow. The terminal wasn't there. A feeling of terrible hopelessness filled him until he saw the terminal somewhat to his right and about two and a half kilometers away. The wind had shifted to the northeast and he had continued to head into it.

His bare hands were bitter cold, stiff and clumsy as he took hold of the steel fence post to climb over. He put his right foot on the second strand next to the post and began to raise himself up. As he started to swing his left leg over, the strand that held his weight slipped downward and he fell heavily against the post. The pain was shocking and he fell apart with it, falling back against the top strand with the back of his left leg and then rolling off into the snow, tearing his trousers. Again he hugged his knees to him, rolling back and forth in pain and frustration, eyes closed, tears running down his twisted face.

He had to roll over onto his knees and use his arms to get up. He stared through the blowing snow at the half-obscured terminal and then, trembling and whimpering, approached the fence once more. His hands were too cold to clutch with, the fingers totally unresponsive now, and he used them like sticks to push down on the strand of wire next to the top. Slowly, clumsily, he thrust his left

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leg between the wires and felt ground beneath the foot. Almost at once his outer shirt was caught, and he tugged tentatively, but the barbs held. Any kind of angry lunge would have freed him, but suddenly there was nothing left. He simply stood there, wretchedly in the blowing snow, clothing snagged on the small barbs, a foot on the ground on each side of the fence, freezing hands hooked woodenly over the wire.

A thin keening sound came out of him, of utter dry-eyed despondency, while the wind grew and the temperature dropped.

The horse carried him easily through the decimeter and a half of fine snow that was beginning to moisten under the late morning sun. After the storm and the three days of arctic cold that had followed it, it was good to get out of the cabin and move around.

Guy Romaine could see the cattle grazing near the fence, pawing in the snow, and turned the horse in that direction. He made a point of cutting fences to give cattle freedom of movement. A lot were likely to die before spring, if the winter was at all bad, but if they could wander around, moving ahead of storms, feeding on bared south slopes, and taking shelter in canyons, they'd stand a lot better chance.

He saw something hanging on the fence, rode over to investigate, and sat looking down at the frozen bundle of snow-covered rags on the ground, its shirt and trousers, still attached to the barbs, torn by the weight of the rigid body. He breathed deeply, a breath of emotion that was part sadness and part disgust, then leaned down with the wire cutters in a mittened hand and clipped the strands to form a gap for the cattle. As he rode past them they shied and circled, less concerned at his mounted passing than if he'd been on foot.

He heard distant crows, off to the west. The view in that direction was magnificent, the jumbled crest of the Front Range a sharply silhouetted white against the clear blue of the winter sky.

Might as well cut fences today, he decided. He wasn't going to go to Denver, even though Mary and Jeannette wanted him to. No point in wasting time on poor advice. Whoever might have been left in Denver after the Plague would be gone now, one way or another. When the power went they'd have had to either leave or die, and if they'd stayed that long it would have been pretty late to leave.

Mary and Jeanette were the only ones he'd found in all of Boulder, and that had been in the summer, with the power still on. The three of them out of eighty thousand!

He followed a fence transverse to the first, leaning down with the cutters now and then, and rode his horse out of a draw. Ahead a long

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gentle slope stretched down to a frozen creek lined with cottonwoods, backed by the first hogback of the foothills. Empty. He'd grown up on a Wyoming ranch and had always liked being alone, which was one reason he'd become a wildlife biologist. But now he wanted to find other people. Not for company but to group together for mutual help and security.

The distant shot cracked across the snow, startling man and horse, and the crows paused in their cawing. After a minute there was another shot, and this time his ears assigned a good bearing to the sound. Eyes alert, he thumped the horse's sides with his heels and trotted southwest toward the creek.

They were in a little canyon that cut through the hogback. A boy and a girl, both riding. A rope was attached with half hitches to the boy's saddlehorn, its other end looped around the neck of a dead calf. The calf was dragging fairly well through the snow, leaving a bright crimson trail of congealing blood behind. They didn't see Guy until he hailed them; then the boy sat watchfully, the rifle across his horse's withers, not saying anything as the man rode up to them.

"Good morning. Groceries?"

"That's right," the boy answered tersely.

A big thirteen, he decided, looking at the boy, but the little girl he'd judge at no more than eleven.

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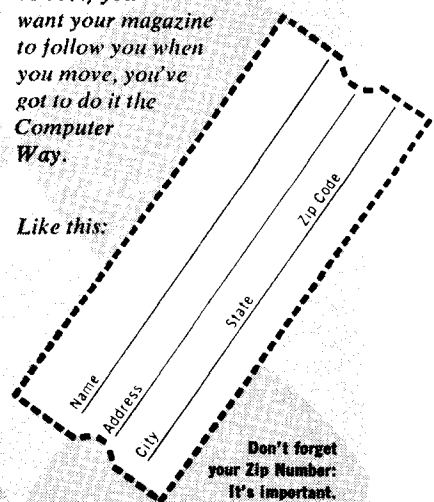

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Surviving alone, by the looks of it. Belatedly he sensed the boy's distrust.

"How'd you two get along through the storm and the cold weather?"

"All right. We're getting along," the boy answered.

The girl looked at Guy and then at the boy and decided. "He made a little tiny log cabin," she began, "with dirt piled against it to keep the wind out. And we have a kind of fireplace, but the roof leaks when the snow melts and the cowhide over the door lets wind in and the hides we got for covers are so stiff we can only use them to lay on and we have to use piles of rags and stuff over us." She stopped and looked defiantly at her partner.

The boy scowled at her, his face darkening.

"Built your own cabin, eh? Well, I'll be darned."

The boy softened slightly. "Not a very good one, I guess, but I've got ideas how to build a better one now. We're learning. Another year or so and we'll get along good."

"Sounds like you're doing pretty well right now, compared to some. I came across a grown man back there, caught in a fence and frozen to death." He gestured eastward with his head. "So you're having trouble with stiff cowhides, eh? How would you like to learn to tan hides? Make them soft, I mean?"

Despite himself the boy's interest showed.

"After I built my shack I hauled in a bunch of books from the Boulder library," Guy went on. "Things like 'Edible Plants of Colorado,' hobby books on tanning and blacksmithing and things like that. Lucky they didn't get burned up like a lot did. If you two would like to live neighbors to us, I'd be glad to help you build a new cabin, and you and I could start learning some of those things."

While Guy Romaine looked tactfully back down the canyon the boy gathered his feelings, then turned his eyes to the little girl. Her yearning was obvious. He nodded to her, a quick reassuring nod.

"Fine," he said to the waiting man. "We'll be pleased to be your neighbors. My name is Bill and this is Celia."

The man reached across and gripped the thin grimy hand that was extended toward him. "Glad to know you, Bill, Celia. My name is Guy." ■

COMPUTER LANGUAGE

The basic structure of all computer languages is Boolegarian.

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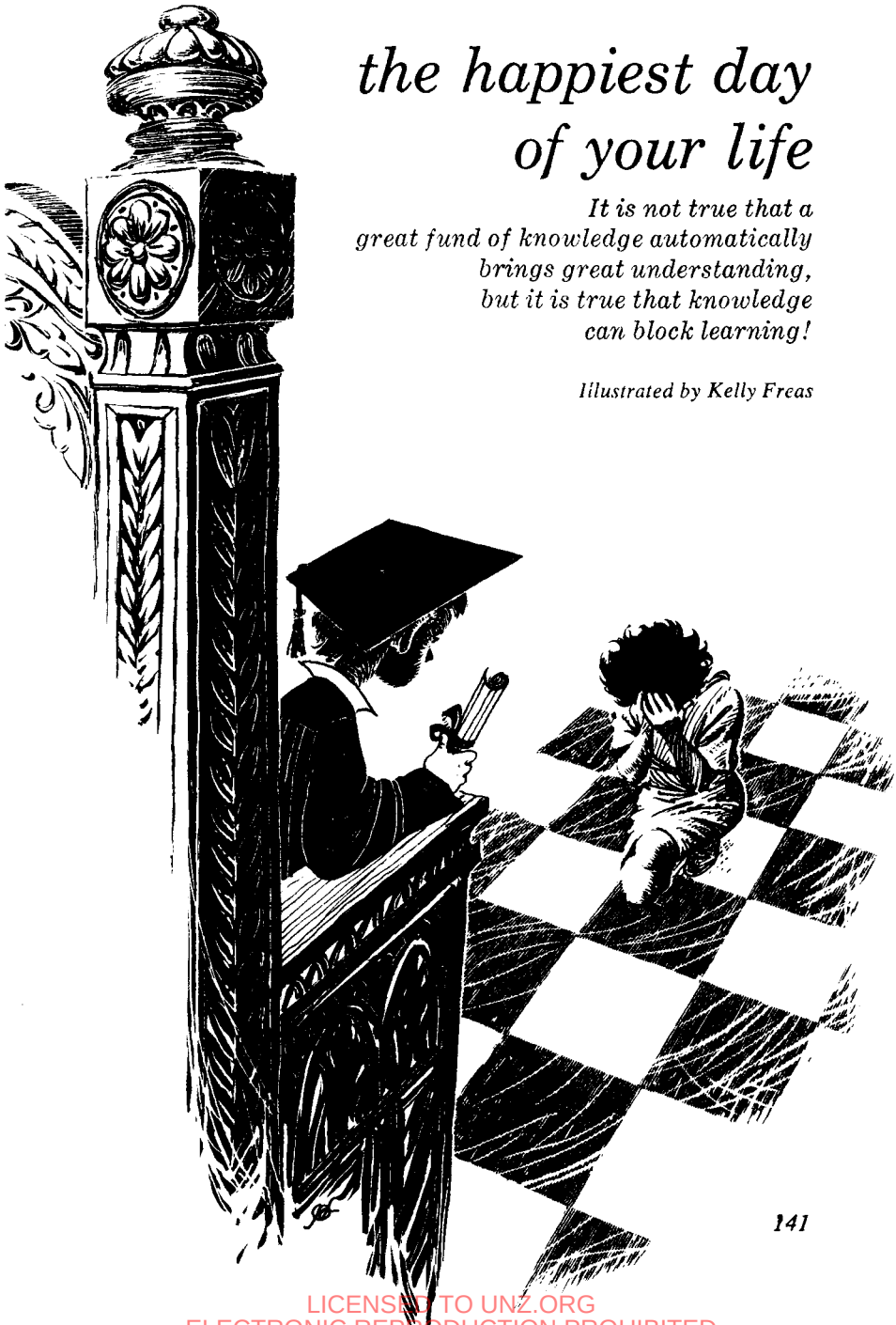
the happiest day of your life

It is not true that a great fund of knowledge automatically brings great understanding, but it is true that knowledge can block learning!

Illustrated by Kelly Freas



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Jean Bannion held her youngest son close to her, and blinked to ease the sudden stinging in her eyes.

The eight-year-old nestled submissively into her shoulder. His forehead felt dry and cool, and his hair was filled with the smell of fresh air, reminding her of washing newly brought in from an outdoor line. She felt her lips begin to tremble.

"Look at her," Doug Bannion said incredulously. "Beginning to sniff! What'd she be like if Philip were going to be away at school for years?" Looming over her as she knelt with the boy in her arms, he patted his wife on the head, looking professorial and amused. The two older boys smiled appreciatively.

"Mother is an emotional spendthrift," said ten-year-old Boyd.

"She has a tendency towards spiritual self-immolation," said eleven-year-old Theodore.

Jean glared at them helplessly, and they looked back at her with wise eyes full of the quality she had come to hate most since they had traveled the Royal Road—their damnable, twinkling kindness.

"Boys!" Doug Bannion spoke sharply. "Show more respect for your mother."

"Thanks," Jean said without gratitude. She understood that Doug had not reprimanded his sons out of regard for her feelings, but to correct any incipient flaws which might mar their developing characters. Her arms tightened around Philip, and he began to move uneasily, reminding her that she might have been losing him in a few years anyway.

"Philip," she whispered desperately into his cold-rimmed ear, "what did you see at the movie we went to yesterday?"

" 'Pinnochio.' "

"Wasn't it fun?"

"Jean!" Doug Bannion separated them almost roughly. "Come on, Philip—we can't have you being late on your one and only day at school."

He took Philip's hand and they walked away across the gleaming, slightly resilient floor of the Royal Road's ice-green reception hall. Jean watched them go hand-in-hand to mingle with the groups of children and parents converging on the induction suite. Philip's toes were trailing slightly in the way she knew so well, and she sensed—with a sudden pang of concern—that he was afraid of what lay ahead, but he did not look back at her.

"Well, there he goes," ten-year-old Boyd said proudly. "I hope Dad brings him into the practice tomorrow—I could do with his help."

"There's more room in my office," said eleven-year-old Theodore. "Besides, the new Fiduciary Obligations Act gets its final read-

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ing next week, and I'm going to be involved in a dozen compensation suits. So I need him more than you do."

They both were junior partners in Doug Bannion's law firm. Jean Bannion looked for a moment into the calm, wise faces of her children and felt afraid. She turned and walked blindly away from them, trying to prevent her features from contorting into a baby-mask of tears. All around her were groups of other parents—complacent, coolly triumphant—and the sight of them caused her control to slip even further.

Finally, she seized the only avenue of escape available. She ran into the Royal Road's almost deserted exhibition hall, where the academy's proud history was told in glowing three-dimensional projections and bland, mechanical whispers.

The first display consisted of two groups of words; pale green letters shimmering in the air against a background of midnight blue. As the slideway carried her past them in silence, Jean read:

"Learning by study must be won;
'Twas ne'er entailed from sire to son."

—Gay

"If only Gay could see us now."
—Martinelli

The next display unit showed a solid portrait of Edward Martinelli, founder of the academy and head of the scientific research team which had perfected the cortical manipulation complex. A recording of Martinelli's own voice, made a few months before his death, began to drone in Jean's ear with the shocking intimacy of accurately beamed sound.

"Ever since knowledge became the principal weapon in Man's armory, his chief ally in his battle for survival, men have sought ways to accelerate the learning process. By the middle of the Twentieth Century, the complexity of the human condition had reached the point at which members of the professional classes were required to spend a full third of their useful lives in the unproductive data-absorption phase and . . ."

Jean's attention wandered from the carefully modulated words—she had heard the recording twice before and its emotionless technicalities would never have any meaning for her. The complementary means the academy employed—multi-level hypnosis, psycho-neuro drugs, electron modification of the protein pathways in the brain, multiple recordings—were unimportant to her compared with the end result.

And the result was that any child, provided he had the required level of intelligence, could have all the formal knowledge—which would have been gained in some

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ten years of conventional high school and university—implanted in his mind in a little over just two hours.

To be eligible, the child had to have an IQ of not less than 140 and a family which could afford to pay, in one lump sum, an amount roughly equal to what the ten years of traditional education would have cost. This was why the faces of the parents in the reception hall had been taut with pride. This was why even Doug Bannion—who made a profession of being phlegmatic—had been looking about him with the hard, bright eyes of one who has found fulfillment.

He had fathered three flawless sons, each with an intelligence quotient in the genius class, and had successfully steered them through the selection procedures which barred the Royal Road to so many. Few men had achieved as much; few women had had the honor of sharing such an achievement . . .

But why, Jean wondered, did it have to happen to me? To *my* children? Or why couldn't I have had a mind like Doug's? So that the Royal Road would bring the boys closer to me, instead of . . .

As the slidewalk carried her on its silent rounds, the animated displays whispered persuasively of the Royal Road's superiority to the old, prolonged, criminally wasteful system of education. They told her of young Philip's fantastic good luck in being born at the precise moment of time in which, supported on a pinnacle of human technology, he could earn an honor's law degree in two brief hours.

But, locked up tight in her prison of despair, Jean heard nothing.

Immediately the graduation ceremony was over, Jean excused herself from Doug and the two older boys. Before they could protest, she hurried out of the auditorium and went back to the car. The sun-baked plastic of the rear seat felt uncomfortably hot through the thin material of her dress.

She lit a cigarette and sat staring across the arrayed, shimmering curvatures of the other cars until Doug and the three boys arrived. Doug slid into the driver's seat and the boys got in beside him, laughing and struggling. Sitting in the back, Jean felt shut off from her family. She was unable to take her gaze away from Philip's neat, burnished head. There was no outward sign of the changes that had been wrought in his brain—he looked like any other normal, healthy eight-year-old boy . . .

"Philip!" She blurted his name instinctively.

"What is it, Mother?" He turned his head and, hearing the emotion in her voice, Theodore and Boyd looked around as well. Three pink,

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almost-identical faces regarded her with calm curiosity.

"Nothing. I . . ." Jean's throat closed painfully, choking off the words.

"Jean!" Doug Bannion's voice was harsh with exasperation as he hunched over the steering wheel. His knuckles glowed through the skin, the color of old ivory.

"It's all right, Dad," ten-year-old Boyd said. "For most women, the severing of the psychological umbilical cord is a decidedly traumatic experience."

"Don't worry, Mother," Philip said. He patted Jean on the shoulder in an oddly adult gesture.

She brushed his hand away while the tears began to spill hotly down her cheeks, and this time there was no stopping them, for she knew—without looking at him—that the eyes of her eight-year-old son would be wise, and kind, and old. ■

In Times to Come

Next month's issue leads off with "The Plague," by Keith Laumer.

This one concerns the Plague attacking on an interstellar scope—on a colony planet, where a viable economy is just building up. The result—ruin. Because of the very nature of the plague it is the most dangerous, destructive, economy-collapsing organism of all!

In addition, of course, is part two of "The Tactics of Mistake", by Gordon R. Dickson. (Which makes a pretty fair line-up of authors for the issue!)

Due to the fact that we have to shift stories around from month to month to make the inelasticity of type and the rigid page format of the magazine come together, I can never say exactly what will be in it; by the time I know, the next issue will, of course, be in type. So no predictions. But we've got yarns by Christopher Anvil, Vernor Vinge, and Robert Chilson among others to juggle with.

The science article next time is already selected—"Life As We Don't Know It," by Rick Cook. Like the bugs that happily live on a diet of iron sulfide, and the others that consider kerosine simply delicious. (To the acute dismay of jet aircraft operators!) And then, of course, there are the happy little plants that live in Antarctic ice . . .

THE EDITOR

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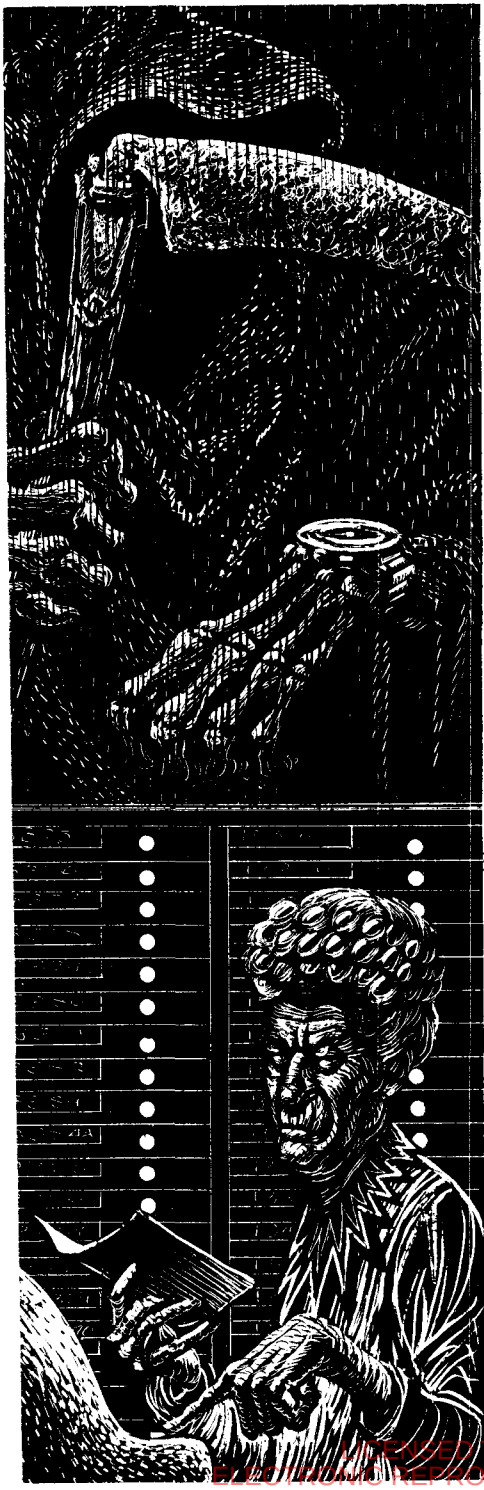

Messything

There's nothing like a good PR man when you have a really serious medical problem!

LAWRENCE A. PERKINS

Illustrated by Kelly Freas

Leaning weakly back in his wheelchair, Sanderson suddenly seemed to decide that prudence and patience had their limits. "Damn you, anyhow!" His voice made up in venom what it lacked in volume.

Dr. Smithfield looked acutely pained. "My dear Mr. Sanderson, surely . . ."

"Stuff it. I don't know the size of the prize, but I know when I've been had. And I guess I can . . ."

"*Mister* Sanderson!" The authority of Dr. Smithfield's voice momentarily silenced his patient while the doctor's stubby fingers punched buttons. "Our conversation when you signed your request for euthanasia was recorded, as you may remember. I want you to listen to it now."

Dr. Smithfield's voice issued

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reedily from a wall speaker. "This recording is being made on Tuesday, May 10, 1992, pursuant to the provisions of the Medical Decisions Act of 1986. Oliver D. Smithfield, M.D., National Public Health Service, Certificate number 9,791,877, acting. Frederick M. Sanderson, born September 7, 1963, at Reisterstown, Maryland, requesting euthanasia."

"Say, what's all this diddle for? You told me I've got this messything, and that with luck I'll live five or six years—in this wheelchair—most of it wheezing like a leaky air hose. Like I told you, I'm an outdoors man. I've got a dozen sports trophies on my mantle piece. And Gwen—she's my wife—is all woman. You think I want her pushing this damn chair around for five years?"

Dr. Smithfield's voice broke in. "Patient Sanderson, PHS 98 RI 8874923, has been diagnosed as terminal mesothelioma. Causative asbestos was established as a mouse nest in the main air duct to the patient's apartment, having been taken from the insulation of the central hot air furnace. Supporting documents have been filed, and the Housing Administration has been officially notified."

"Look, we already went through this once, didn't we? Everybody knows suicide's a crime. Most times you medics can bring a guy back, and he spends the rest of his life in the tank. If you can't bring him back, you put the arm on his family and they wind up in the street begging. But this euthan thing—you told me it was legal."

"It is legal. That's exactly why the law insists on these precautions. In the early days of the Act, there were some awkward scenes; patients suddenly changed their minds when it was time for their euthanasia. Therefore, an euthanasia appointment is—legally speaking—almost the same thing as an execution. It will take place."

"Well, hell, why not? If what you said about this messything . . ."

A stubby finger stopped the playback. "What I said then was what medicine knew then. Surely you must understand that! And this new discovery is completely untested. Twenty terminal cases of mesothelioma have been arrested, but only eleven show actual improvement. Furthermore, the experiment has been running only thirteen weeks."

"Terminal cases? You mean, like me?"

Dr. Smithfield hesitated. "Well actually, no. As I explained to you when you applied for euthanasia, in some cases the process merely terminates the applicant's identity, retaining the vegetative body for experimental purposes. The medical profession has always been reluctant to experiment on humans, but legally a terminated subject is no longer human."

"You mean I'll be alive, but not

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human? That's what going to happen to me? Getting killed would be bad enough just now, when there's hope." Sanderson lolled back in his wheelchair, gasping, his face ashen. "But if they make a Thing out of me . . ."

Stubby fingers reached for the buttons and then withdrew. "You made the choice. I told you. The law requires me to tell you. It's in the written form, too. But I suppose you didn't notice. Many patients ignore the terms when they become eligible for euthanasia. The Medical Decisions Act requires me to speak plainly, and a plain statement of painful and unavoidable death frequently causes a patient to react emotionally."

Sanderson's bluster died as quickly as it had arisen. Sick and frightened, he crouched in his wheelchair. "My appointment is for October 30th. That's next Friday! I don't want to be a Thing! What are we going to do?"

"That's why I called you in and told you about the experimental cure for mesothelioma. I've never had a case like this before; I've never even heard of one, although the Medical Decisions Act is six years old now. The law requires the patient to initiate his own petition for euthanasia. Therefore, it seems that you should initiate a petition for cancellation and that I should certify it."

"Initiate? Me?"

"Don't worry. I'll prepare something for you to sign." The doctor sighed. "I do wish that we had more time."

Sanderson's mood had changed again. "Tell me something, doctor. I keep hearing that overpopulation is so bad. Why is the government so rough on people who commit suicide when it makes this euthan thing so easy?"

"Ah, the state cherishes talent. Think a minute. The antisuicide laws mean nothing to an unskilled nobody on the dole. Prison would give purpose to his life, most likely, and he has no family. But to a useful citizen like you, the state—having unfairly made suicide a crime for you only—must give an equal right to painless death. But, because you are valuable, the state must be assured that your deliberate death is justifiable."

Dr. Smithfield left Sanderson in the nearest lounge, visibly trying to adjust to the hope of a reprieve from death or worse, and began struggling to produce an adequately bureaucratic document for Sanderson's signature. Eventually he contrived a Request for Cancellation of Euthanasia form—the Request for Euthanasia form shot through with some negative words.

"This'll do it, huh?" Sanderson's face clearly indicated doubt that anything would "do it."

"As I said, I have never had a case like yours before. But yes, this should do it. Now please read this document carefully."

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Having carefully guided Sanderson through the initiator's section of the new form, the doctor completed the rest of it with equal care. Certainly the request should "do it." Shouldn't it? Dr. Smithfield realized uncomfortably that he had a very special interest in the survival of this patient. How many euthanasia requests had he endorsed? How could such a thing be routine?

Vaguely mistrustful of the whole system, he personally addressed the bulky envelope to the State Health Officer and then mailed it himself.

But on the following Monday Dr. Smithfield was outraged and alarmed to find the makeshift form in his morning mail. Attached to it was a pink buckslip: THE ATTACHED COMMUNICATION IS HEREWITH RETURNED FOR THE FOLLOWING REASON(S). Out of some dozen alternatives, someone had checked *form obsolete.* "Obsolete?" he raged. "Doesn't some fool realize that a human life is at stake here?"

Staring at the incredible buckslip, he wondered what he should do. Today was Monday, the 26th of October. In four more days the euthanasia detail would come for Sanderson. And, if the state erased Sanderson, it would do so by authority of a document that he, Smithfield, had signed. The notion was intolerable. But what could he do?

Four days! Savagely he punched the button to activate his vidiphone. "Smithfield here," he snarled at the pretty face filling the screen. "Get me the State Health Officer. Category Urgent."

The screen promptly blanked to a succession of supposedly soothing Lissajous figures, but Dr. Smithfield was in no mood to be soothed. He glared at his clock, loathing the creeping second hand. From time to time he glanced at the hateful pink slip with which some brainless bureaucrat had voted against a human life. *Obsolete?*

Finally the vidiphone chimed as the pretty face returned. "The State Health Officer cannot be reached at this time," it smiled. "Would you like to leave a message?"

"When *can* he be reached?"

"I was not given that information. Would you like to leave a message?"

"Would *you* like to . . . aaaah!" Dr. Smithfield realized that he was not being professional, and that the pretty face was only marginally responsible for his problem. "Say that a human life is at stake. I must speak to him most urgently." He glanced at his calendar. "I'll be in my office all morning." Reluctantly he switched off his vidiphone.

Concentrating on the calendar, the doctor tried to plan his day. He was surprised to find himself wondering whether the Governor would be as hard to reach. The Governor? With a shock he real-

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ized that he was projecting beyond his call to the State Health Officer. Had the pink buckslip undermined his faith in his own organization that much?

Guiltily dismissing the thought, he buried himself in a pile of the routine work that he usually hated. From time to time he glanced at the obdurate clock, but almost an hour and a half had passed before his vidiphone chimed again. Punching the *Accept* button, he found himself staring at a craggy female face.

"I am Miss Helen Dwarks, personal secretary to the State Health Officer. I have been informed that you desire to speak to the State Health Officer. Would you please state the nature of your business?"

"Smithfield here. People Health Center Number Five. Dr. Oliver D. Smithfield. May I speak to Dr. Finnegan? Category Urgent."

"I will be the judge of the urgency. Would you please state the nature of your business?"

"I have a patient due for euthanasia in just four days, and—because of a discovery published just last week—he may be curable now. My name is on the certificate, and naturally I want to withdraw my approval. I must speak with Dr. Finnegan immediately. Can you connect me?"

"That sort of thing should be taken care of by routine application."

"But that's just it! I *made* a routine ap . . . ." Dr. Smithfield suddenly realized that the circuit was dead. Mechanically he switched off his own vidiphone. wondering whether Miss Helen Dwarks had been the bureaucratic moron who had classified his makeshift form as obsolete. Reluctantly he realized that his subconscious had been wise to wonder how to reach the Governor.

To his amazement, the Governor's familiar features appeared on the screen in less than fifteen minutes. "Harrumph! Well, Dr., . . . ah . . . Smith, how can I help you?"

"Smithfield. Oliver D. Smithfield. Governor Brady, I'm faced with a frightful problem. Several months ago I approved an euthanasia request for a patient with what then was incurable mesothelioma. His date is this Friday. But a treatment, a cure, has just been discovered. It's still experimental, but the death of euthanasia is a certainty."

"I see, I see. That certainly is a misfortune for the patient. But why have you called me? I'm a busy man, Dr. Smith. A very busy man."

"Smithfield. Sir, surely we can't allow this patient to die merely because the cure was discovered in October and not in January! I'd never be able to certify another euthanasia application if I thought it couldn't be stopped when a cure for the patient's disease happens to

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be announced. My commitment is to cure people, not kill them!"

"I see, I see. But just what is it that you want me to do? I'm not a doctor."

"Sir, as chief of state you approve all death sentences, including euthanasia appointments. You approved this one. I'm asking you to review your action and withdraw that approval. Just think, sir—the patient is only twenty-nine years old. How would you feel if it were you, and you'd just found out that you had the best part of a lifetime ahead of you—except that the state was going to kill you next Friday?"

"Harrumph! I will certainly be glad to help you, Dr. Smith. As soon as the State Health Officer forwards the necessary papers to me, I can take immediate action."

"But that's the whole trouble! I can't reach the State Health Officer! I forwarded a written petition and nobody even looked at it. I tried to take a vidiphone call, and a Miss Dwarks refused to let me speak to him. And my patient has only four more days to live unless you can stop this thing. Only four days!"

For the first time, the Governor's face expressed concern. "Dr. Smith, that *is* a difficult problem. Yes, difficult. If we were dealing with a condemned criminal here, I could pardon him. But the law makes no provision for pardoning a sick man because medicine has found a way to cure him. If the State Health Officer sends me a communication, I can act. Otherwise, my hands are tied."

"Certainly, sir, certainly. I understand. All of us must operate within the law. But perhaps, with your influence, you could help me to get in touch with Dr. Finnegan."

The Governor's face cleared. "I work very closely with the State Health Officer, and I'll act on this matter the very minute he forwards the papers to me. Harrumph! I certainly understand your position, Dr. Smith. But now—if you'll excuse me—I'm a very busy man. Very busy." The vidiphone screen blanked.

It took Dr. Smithfield less than ten minutes to decide that he was prepared to harbor a fugitive from justice. Glancing again at his calendar, he decided that he had another half hour before his daily schedule began to imprison him. He reached for his vidiphone and then snatched his hand back. No purpose in leaving an obvious trail. The vidiphone operator already knew entirely too much.

Eleven minutes later, having propelled himself as fast as possible by elevator and speedbelt, he hurried through Fred Sanderson's ward. Anxiously aware of the attention that he was drawing, he wondered uselessly whether a vidiphone call might not after all have been the better idea. Too late for that: *too*

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late seemed to be the motif of this whole affair.

Sanderson was withdrawn into his wheelchair, watching tri-di. Dr. Smithfield approached him nervously. "Could you come with me?"

"God, you mean it's working? You think . . ." Seeing Dr. Smithfield's imperious finger over his lips, Sanderson belatedly noticed the curious stares of his fellow patients and trailed off into reluctant silence. Hitching his chair around, he eagerly followed the doctor to the nearest speedbelt adit.

When they reached Dr. Smithfield's office, he silently switched his vidiphone out of service, locked the door, and then quickly checked around while Sanderson goggled. Clambering on a chair, the doctor slammed the air vent shut, then descended to sit in the chair. After he had caught his breath, he described his vidiphone calls to the State Health Officer and to the Governor.

"Oh, damn all of you! I'm going to die, I'm going to live, I'm going to die!" Sanderson half rose out of his wheelchair and fell back, gasping. "Make up your minds! Make up your minds! Sure, I want to live. God, how I want to live! I told you, I'm an outdoors man. My whole life is being alive, being a man, a *real* man. But, hell you wouldn't understand. What would you know about it?"

"*Mister* Sanderson, calm yourself! Calm yourself! If you really want to live, be quiet and listen. These walls are thin and I can't guarantee who may be on the other side."

"Huh?"

"If you fail to keep your appointment, anyone helping you is a criminal. I may break the law, but I'm not going to sit on my hands while this bureaucracy makes away with you because some moron can't read. I do wish that the vidiphone operator hadn't heard my calls, and that the men in your ward hadn't stared at us quite so hard."

"Hell, I didn't mean . . ."

"I'm sure you didn't. If only I knew how to get you out of here unobserved, I'd treat you at home. My home, that is."

Sanderson coughed nervously. Hope of life restored, the four days of uncertainty obviously weighed heavily on him. "Home. That gives me an idea. My brother-in-law is a reporter on the *Daily Sun*. I'll bet he could get me out of this."

Dr. Smithfield cogitated briefly, unconsciously switching the vidiphone back into service. "What's his name?"

"Jack Donahue. Say, it's around eleven o'clock now. You could catch him at the City Desk."

Dr. Smithfield wasted several minutes trying to figure out a way to place his call without going through the central switchboard, then gave up and asked the pretty

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face to connect him with the *Daily Sun*.

The face's eyebrows rose alarmingly. "The *Daily Sun*? Is that what you said?"

"Yes. The newspaper. You may have heard of it? Please connect me."

The connection made, Dr. Smithfield motioned Sanderson to wheel himself in front of the viewing screen and asked to speak to Jack Donahue. Moments later a face stared into the room with an expression of pleasant surprise.

"Well, hi, Fred! What brings you to a vidibox after all these months?"

"Jack, I'm in a hell of a mess. Dr. Smithfield here can tell you all about it—and I hope to God you can help. Tell him, Doctor."

The doctor nudged his own chair into position as Sanderson backed away. "I rather suspect that I should say nothing over this circuit. As you probably suspect, something has gone rather badly wrong with the system, and you may be the only person who can help. Could you be here in half an hour? Come to, Public Health Unit Six, Room 7807."

The reporter glanced off screen momentarily. "Unit Six, Room 7807, right? I can be there in forty, forty-five minutes. Will that do?"

"It will have to do." Switching off the vidiphone, the doctor swiveled to face Sanderson. "A day ago I'd have been more worried than I am now. But if nobody read our application, I can believe that nobody reads anything. Or notices anything. But I could be wrong. I have been wrong so far. And if that vidiphone operator is also the receptionist . . ."

The vidiphone chimed and Dr. Smithfield suddenly felt faint. But when he falteringly punched the *Accept* button, his caller was only a secretary asking if he was going to attend the weekly staff meeting. Explaining that something had come up, he asked that a stenographic record be made for him and then switched off the vidiphone with visibly trembling fingers.

It was impossible to sit idle, but the doctor was in no condition to work. He, therefore, spent the next half hour explaining all the known facts about mesothelioma and all the reported details of the experimental cure. He had thrown himself so completely into his little lecture that he was surprised to hear a knock at his door.

"Come in," he invited, then remembered that the door was locked and hurried over to open it.

"Dr. Smithfield? Oh, hi there, Fred. Doctor, you wanted to see me?"

Dr. Smithfield stepped forward to shake hands, but Sanderson suddenly rolled his wheelchair forward and gripped Donahue's extended hand. "Jack, you've got to save me. God Almighty, man, They're go-

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ing to turn me into a Thing. When I signed that euthan paper I could face being rubbed out, but not this. You will help me, won't you?"

The reporter stared suspiciously at Sanderson's face and then at Dr. Smithfield's. "Say, what is this? Let go my hand, Fred!"

"I can hardly blame Mr. Sanderson. Won't you sit down and let me explain?" Waving Donahue into the chair that he had stood on to close the air duct, he told the reporter what had happened. As he finished, he waved his improvised form with its pink buckslip at the reporter and then thrust it at him.

Donahue startled the doctor by leaping up, putting the form on the chair, and then whipping out a minicamera to take two photographs. Then, stuffing the camera back into his pocket, he picked up the form and handed it back to the doctor. "One more thing. Could you put through another vidiphone call to that old biddy at the State Health Department?"

The doctor hesitated. "I suppose so—but I don't know whether it will go through. The last one almost didn't." Shrugging, he punched the button to activate the vidiphone. "Get me the State Health officer again. Category Urgent."

Expectedly, the pretty face returned to the screen to announce that the State Health Officer could not be reached. Dr. Smithfield asked to be contacted as soon as possible and resignedly switched off the vidiphone.

Donahue, meanwhile, pulled various pieces of gear from his pockets and then took off his coat to extract a large, flat metal box from the lining. As he busily assembled everything into a unit, he explained, "I thought I might need this baby. This is a field videocorder. People like your receptionist usually yell when we try to bring one in—if they see it."

Sanderson, crouching in his wheelchair, watched the preparations to save his life in complete silence. Once he opened his mouth to speak, but coughed instead. The doctor and the reporter glanced at him and then at each other, sensing his hope and fear.

Donahue self-consciously clicked the last element into place and then flipped a switch. "I ought to have plenty of time, but I'll get this baby set up as quick as I can just in case. You got an extra chair I can set it on? No point in warning the old biddy that she's on camera."

"The only 'extra' chair is the one you were sitting in. State didn't foresee witnesses to interviews in this office. Considering how often my patients are in wheelchairs, I'm surprised that I even got that one."

"That's O.K. I don't mind sitting on your desk." Donahue peered sharply at the doctor. "You seem like one of the more ethical people here. Not everybody is, you know. Or maybe you never thought about

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that." The reporter adjusted a knob. "I hope you won't let this business shake you loose. The system needs more people like you."

"I don't seem to have had much choice." The doctor nodded at Sanderson, shrunk into his wheelchair watching, hope and despair warring in his expression. "I had no choice at all about him. If he can be cured—and I believe he can be—I must cure him. I must do everything possible to cure him."

Sanderson coughed again, and Donahue nodded thoughtfully.

"On the other hand, when the State Health Department realizes what I'm doing, I would be astonished if I were to remain in this position. I am, after all, an employee of the state." Glancing at the assembled videocorder, Dr. Smithfield idly wondered where the lens was. All of the cameras and studio oconoscopes that he had seen had had great staring glass eyes.

To break the oppressive silence, Dr. Smithfield again began discoursing on mesothelioma and its newly discovered cure. Under Donahue's skillful probing, he also dwelt on the vagaries of the Public Health Service. Both of them were startled when the vidiphone chimed. Donahue recovered first, did quick things to his videocorder, and slipped off the desk and out of vidiphone range.

Dr. Smithfield hesitated, then punched the *Accept* button. He found himself staring at the equine features of Miss Helen Dwarks.

"What is the reason for this fresh interruption?"

"Miss Dwarks, you broke the circuit before you had given me a chance to explain. You stated that this case of mine should be taken care of by a routine application."

"That is correct. Please do so, and do not disturb me again." A sixty-cycle hum and a blank screen announced that the line was dead.

Donahue broke the silence, walking around to stare at the blank screen. "I believed you, doctor, but nobody could imagine someone like that without seeing it. Who does she think she is—custodian of life and death?" Already he was busily unplugging elements from his recorder and stowing them away in his pockets. "What do you think?"

"I'm stunned. When I became a Public Health Service employee, I thought I was dedicating my life to healing the sick and extending human life. Here, I am the instrument of shortening a human life. Frankly, I don't think I will ever be able to sign an euthanasia certificate again."

Dr. Smithfield seized his impromptu form in his right hand and smote it with the back of his left. "I could send this thing forward again under a cover letter—and risk having it bounce again.

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But, even if it does get processed, how can I know that it would get through in time? Somebody would have to get the information to the Euthanasia Department. Even if it got there in time, this whole bureaucratic nightmare could begin all over again. What then?"

"I don't think you need to worry, doctor. Unless somebody stops me before I leave the building, that euthanasia appointment will not take place."

For a moment no one spoke, although Sanderson broke into an extended fit of coughing. Then Dr. Smithfield found words as he grasped and shook the reporter's hand. "God go with you!"

Wondering what had made him say such an archaic thing, Dr. Smithfield shook his head briefly as though to clear it, then turned to his patient. "I suppose you'd better return to your ward. If anybody should ask you where you were, say that you were attending to personal affairs. That's the truth, of course, but anybody will assume that you had a different sort of personal affairs in mind."

"Damn it—thanks, Doctor."

"Don't thank me! What else could I have done? Now hurry before anyone else misses you. Misses. Good Heavens, you've missed lunch! Here, let me write you a slip." Scribbling, Dr. Smithfield wished that he might write a slip and be rid of the whole nightmare.

Dr. Smithfield had also missed lunch. Scanning his calendar, he realized that he'd also missed the weekly staff meeting—but the secretary had taken notes for him—and a scheduled viewing of X rays. But lunch didn't matter, and the X rays would keep.

Most of what he was doing would keep, he realized with a sudden chill. How wise had he been to hazard his career because of Sanderson? Reluctantly he admitted to himself that the life of any human was worth his career because dedication to human life *was* his career. The paradox bewildered him.

He was still brooding, giving only part of his attention to the records that he was checking, when the paging system announced that he had a vidiphone call. He excused himself from the nurses who were helping him and took it in the ward's staff alcove.

The screen showed him Jack Donahue's face. "Dr. Smithfield, I've been wrestling with my conscience, and it came out a draw. You happen to be sitting on the biggest story of the year, and I've got to break it—even if it wasn't to save my brother-in-law's life. And I like Fred; I'd be a louse not to save him."

"I beg your pardon?"

"That gadget I set up in your office this morning was mostly dummy. Everything I took off of it before my last question to you was fake. The machine was still run-

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ning." Donahue looked very unhappy.

"Oh?"

"And I noticed you looking for the lens. I wonder why nobody ever thought about that. I'll suggest that from now on we'd better mount a big round piece of glass somewhere. Actually, the videocorder has dozens of pinhole apertures. They depend on light amplification, of course."

Dr. Smithfield suddenly felt a sharp icicle in his belly. "What do you mean?"

"I think you'd better watch the tri-di news on Channel 67 at five o'clock. And remember, I'm a lot more anxious to break this thing up. After all, Fred is my brother-in-law—and he's a nice guy."

"Thing? Break up what thing?" But the doctor was talking to a blank screen.

Dr. Smithfield could not recall having had a vidiphone blanked on him since the device had appeared as a marriage of the mid-century telephone and closed circuit television. But this was the fourth time today—and it hit with the hardest impact. Numbly he hung up the earpiece, breaking the circuit, and looked around for a place to sit down. His knees were trembling.

He found a plush chair invitingly close to a tri-di set. Had Donahue said Channel 67? He dialed it with palsied fingers and then sank back into the chair, ignoring the retro-bop wigglers and the soul roll to which they jerked. He was not watching when a smiling young man announced the five o'clock news. But Donahue's familiar face roused him from his torpor.

"Good evening. This will be an unusual broadcast, ladies and gentlemen. A human life rests in the balance this evening. A fine young man who loves life as much as you do, a young man anxious to be a vital part of our great nation, a young man who believes in his innate right to life, liberty, and the pursuit of happiness, is anxiously waiting to find out if you, the people, will allow him to live that life."

The tri-di screen cut to a still of Sanderson in his wheelchair staring at the viewer with a mixed expression of hope and resignation. "This citizen, six months ago, was found to be suffering from mesothelioma—that's a type of cancer of the lung—for which no cure was known. If *you* had mesothelioma and knew that you had four or five helpless, hopeless, painful years to cough your lungs out, what would *you* do?"

Donahue paused dramatically. "That's right. You'd request euthanasia. But would you have done that—would you have asked to be wiped out—if you knew that you might be wiped out *after* a *cure* had been found? Ladies and gentlemen, would you willingly be thrust into the dark beyond if you knew

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that you could be cured, had years of productive life ahead of you—and that the state was wrenching those living years away from you?"

Sanderson faded from the screen and Donahue reappeared, staring mesmerically at the viewer. "And yet that is the dark fate that this innocent youth faces. You may find this hard to believe, ladies and gentlemen of the tri-di audience, but this doomed young man faces death because the cure for his disease was discovered too late, and a brainless bureaucracy cares less for his life than for its rules. Listen to this!"

The screen cut to a closeup of Dr. Smithfield's face as Donahue talked on. "This dedicated public servant, Dr. Oliver D. Smithfield, learning of the cure for mesothelioma on the very day that it was published, realized that his patient now had a chance of survival, but that he would have to act at once. And, as there is no form for canceling a request for euthanasia—this is the first known occasion when the cure for an euthanasia applicant's disease has been discovered during the life of the applicant—Dr. Smithfield invented one."

The screen cut to a closeup of Dr. Smithfield's form and then zoomed in on the pink buckslip. "This is what happened. Some stupid bureaucrat at the State Health Department rejected it because the *form is obsolete*. A form devised three days ago is *obsolete*. A human life is about to be snuffed out because some stupid bureaucrat can't be bothered by cries for help." Donahue backhanded the slip. *"Obsolete!"*

The screen cut back to Dr. Smithfield's face. "So this dedicated doctor placed a vidiphone call to the State Health Officer. A bureaucrat named Helen Dwarks—who may be the idiot who attached that pink buckslip—told him to make a routine application and then broke the connection on him." The voice paused dramatically. "If *you* had only four days to live, how would *you* like to have a bureaucrat blank your circuit?"

Donahue's face reappeared on screen. "This reporter was not able to be present when that first call was placed, but he was there when Dr. Smithfield placed a second call in a desperate attempt to save his patient's life. Let the record speak for itself."

Abruptly the horsey face of Miss Helen Dwarks filled the screen. "What is the reason for this fresh interruption?"

The doctor's face reappeared and he heard himself say, "Miss Dwarks, you broke the connection before you had given me a chance to explain. You stated that this case should be taken care of by a routine application."

The screen flashed back to Miss Dwarks. "That is correct. Please

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do not bother me again." And then there was the screen displaying Lissajous figures. After a pause of several seconds to underline the deadness of the line, Donahue's voice cut in. "This Helen Dwarks person did not allow us enough time to make the required announcement that the call was being recorded. Belatedly, I make it now."

The image on the screen flicked again to the pink buckslip. "Dr. Smithfield, this experience must have been very painful to you. Do you have any word for our listening and watching audience?"

The doctor was shocked to see his own face appear on the screen and to hear himself saying, "I'm stunned. When I became a Public Health Service employee, I thought I was dedicating my life to healing the sick and extending human life. Here, I am the instrument of shortening a human life. Frankly, I don't think I will ever be able to sign an euthanasia certificate again."

Donahue reappeared. "One final word. Governor Brady has promised Dr. Smithfield to act immediately in halting this frightful bureaucratic blunder as soon as Dr. Finnegan, the State Health Officer, contacts him. Governor Brady, an elected official, holds office at your pleasure. Dr. Finnegan is an appointee of the Governor. You, the people, must be the ultimate judges of this case. And now here is your announcer."

Dr. Smithfield turned off the tridi with trembling and uncertain fingers. Sinking back into the plush upholstery, he tried to organize his swirling thoughts. Donahue, undoubtedly with the noblest motives, had just made it seem that he, Smithfield, had publicly denounced both his department and his lawful superiors.

Obviously Donahue had skillfully dubbed a genuine recording into the program. Dr. Smithfield even admitted grudgingly that the trick might turn out to be the only way to save Sanderson's life. And if the broadcast should terminate the career of Oliver D. Smithfield, M. D., he wryly admitted to himself, the signature "Oliver D. Smithfield" had very nearly terminated the life of Frederick M. Sanderson.

As he began recovering from the shock, the doctor forced himself toward his office.

As he had never before written a letter of resignation, this one came painfully. He had thrown away a dozen drafts before he wrote:

> Due to events at least partly beyond my control, I suddenly find myself at the center of a public controversy which is probably as offensive to your standards of conduct for public servants as it is to my own notions of ethical behavior. Therefore, I have no choice but to tender my immediate resignation, effective as of 5:00 p. m. today.

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Afterwards, Dr. Smithfield was never able to remember clearly how he had got home—and never able to forget the bitter realization when he arrived that he could no longer consider his state-supplied quarters "home." His stomach complained feebly about the two missed meals, but it was his worries about the formless future that kept him sleepless through most of the night.

His patiently chiming vidiphone took a long time to wake the doctor on the following morning. His first sleepy thought was surprise at the bright sunlight pouring through the window. He must be hours late for work! Then he remembered the letter and was astonished that anyone still wanted to speak to him.

Groggily he punched the *Accept* button—and was galvanized to see the scowling face of Governor Brady on the screen.

"Harrumph. I understand that you resigned from your position yesterday."

"Yes, I did." Dr. Smithfield felt vaguely alarmed. "I don't see what more I could have done, in view of the fact that I've done nothing overly criminal. If someone feels that I should be arrested, here I am. In the meantime, I can be out of these government quarters by Friday." *Friday*, he thought painfully. That's Sanderson's appointment day.

Governor Brady's face darkened. "You fool, if you resign, *I'm* the one who'll be out by Friday. Look, I'm sorry if I was short with you yesterday. *I* don't understand these medical things! I can't be an expert on everything! I depend on the State Health Officer for medical information—is that a fault? Harrumph! By the way, how would you like to be State Health Officer? The position is open."

Dr. Smithfield tried to stifle a yawn. His body was still sleepy, although his mind was suddenly wide awake. "Excuse me; I got to sleep late last night. State Health Officer? I suppose all this has something to do with Sanderson?"

"Sanderson's request for euthanasia was canceled seven minutes after the State House opened this morning. He'll be put on this new thing immediately. He thought about it a while—and I don't blame him, frankly—but he signed the papers. Seems that you lectured him about his disease and medical research, and he trusts you. And the lab people think that the will to live is a factor that they've been overlooking."

Dr. Smithfield had a sudden thought. "I take it that Dr. Finnegan is no longer an employee of the state. And Miss Dwarks?"

Governor Brady smiled conspiratorially. "I thought that you, as the new State Health Officer, might like to take care of her personally."

Dr. Smithfield, smiling back, decided that he definitely would. ■

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the reference library

P. Schuyler Miller

A SOVIET "NEW WAVE"?

There now seem to be two more or less regularly appearing series of anthologies presenting English translations of Russian science fiction. A series published by New York University Press and edited by Professor Robert Magidoff, head of the university's Department of Slavic Languages and Literatures, has produced three volumes—the latest, "Russian Science Fiction: 1969" (210 pp.; $6.95). From where I sit, with no special knowledge of the Russian language, Russian literature, or Russian science fiction, it seems to me that Professor Magidoff's appreciation of SF is poor and his translators are awkward and wooden.

The other series, published by Holt, Rinehart and Winston, consists of stories selected and translated by Mirra Ginsburg. Her second anthology, "The Ultimate Threshold" (244 pp.; $5.95) is just out. For my money, Miss Ginsburg—who has a distinguished career as a translator of Russian and Yiddish literature—is by far the better editor, anthologist *and* translator.

The Soviet government, through its Foreign Language Publishing House and other outlets, is also publishing science fiction in English. I've reported a few of these books when I've stumbled across them, and Professor I. A. Efremov, the distinguished paleontologist whom you can consider the E. E. Smith or the Robert A. Heinlein of Soviet science fiction, has called others to my attention. I just don't know where in the U.S. of A. you can find them—probably in New York or Washington. (My Chicago source developed certain traits of decadent capitalism and I neither got the books I ordered nor got my money back.)

Professor Magidoff's collection, this time, has the added attraction of two introductory commentaries on Russian science fiction by Russian commentators. Evgeni Brandis and Vladimir Dmitrevsky are identified as "the two most distinguished science-fiction editors and compilers in Russia." (I'd like to see their choice of what they consider good.) They contribute a short historical essay. Daniil Granin, a mainstream writer, adds

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a longer essay on science fiction as a look into the future. (The publisher has mixed up his text unmercifully; same thing has happened to some of the stories, with lines, paragraphs and whole pages out of sequence.)

Miss Ginsburg has a good introduction of her own on the "state of the art," which raises the question that gave me the title for this month's column. If she is right—and Magidoff seems to disagree, though his essayists don't—Soviet Russian science fiction writers are discovering, and gingerly exploring the many opportunities for satire and tongue-in-cheek social commentary that many western writers have used happily for some time. In the last decade, she reports, Soviet SF writers have created "a distinct, vital, and flourishing literature, which has aroused a tremendous response among the Russian readers." Editions of 100,000 to 150,000 sell out in a few days. American SF writers should have it so good!

Both editors provide some information on some of the authors, and the two lists illustrate one difference between Magidoff's and Ginsburg's ideas of the leading present-day Soviet SF writers. Ages are given for seven of the ten writers in Magidoff's collection. They range from 46 to 63, and average 55. Miss Ginsburg's nominees present quite a different picture. The oldest of ten writers whose ages are given is 61 (Ilya Varshavsky, who has some of the best stories in both books). The youngest is 32, and three more are only 35. Their average age is 41—and all of them began writing science fiction in the late '50s and 1960s. Judge for yourself which book illustrates the "new wave" in Soviet SF.

Incidentally, since there is no such thing as a "correct" formula for transliterating names from the Cyrillic alphabet to the English alphabet, some names appear quite different in different books. Anatoly Dneprov—another reliable member of the "old guard" who is seven years younger than I am—is "Dnieprov" to Magidoff. (The name is a pen name for the Soviet physicist, A. P. Mitskevich.) Mikhail Yemtsev was "Emtsov" to Magidoff, who had the same story, a collaboration with Yeremey Parnov, in his 1968 volume.

"The Ultimate Threshold" contains thirteen stories, a couple of which—including the title story by Herman Maximov—are fantasies. Dneprov's "When Questions Are Asked" is a lovely little put-down with a trick ending and recognizable portraits of academic types. Olga Larionova's "The Useless Planet" shows us a purely rational galactic civilization totally confounded by the society of ancient Greece. Varshavsky's "Preliminary Research" uses English or Ameri-

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can names in a nice dig at a much-ado-about-nothing project by Big Science. The one badly dated story of the lot—a kind of "Hicks' Inventions" yarn—is Vladmir Grigoriev's "The Horn of Plenty," really a fantasy.

Varshavsky's "A Raid Takes Place at Midnight" is really the most modern story in the new Magidoff book. A police computer is pitted against an identical gang computer in a logistic battle over a bank robbery in an English-speaking city. Dnieprov/Dneprov also has English characters in "Crabs Take Over the Island," a fairly obvious story about self-replicating robots designed as a weapon. "Unique," one of two stories by Vladlen Bakhnov, is a sly paradox about computers that evolve into yes-men. It just might be read as a parable of human society in a country which shall be nameless. (There are also a few pages of horrible "robot humor" by a couple of writers who really deserve my protection. The gags at SF conventions aren't this bad!)

Taking the Magidoff anthology as typical of what Russian science fiction has been, and Miss Ginsburg's as a sample of what young writers are doing, I would say that Soviet science fiction, in themes and professional technique, is about where American science fiction was when John Campbell took over here at Astounding. The old-fashioned tone to the stories Magidoff selects may be partly the fault of his translators; Miss Ginsburg's translations read like stories, though she has let a few boners in technical jargon slip through her academic mesh ("supercentrifuge" for "ultracentrifuge," "silicon" for "silica," a Dutch name barely recognizable after being switched in and back out of Cyrillic letters). On the other hand, it seems evident that the younger writers recognize the possibilities that western writers have been exploring in science fiction, and are going to make the most of them if they are permitted.

The "new wave" in Soviet science fiction promises well.

IRON CURTAIN POSTSCRIPT

An Australian fanzine, "S.F. Commentary 9," published by Bruce R. Gillespie, P.O. Box 245, Ararat, Victoria 3377, Australia, showed up in the mail after I had written my notes on Soviet science fiction. It contains three articles on Philip K. Dick, but of chief interest here is a pair of articles by Stanislaw Lem, who appears to be Poland's chief and only professional science-fiction writer. Both have been translated from German publications. The first of the two is a short survey of Polish science fiction in which he comments on his own rather prolific work and discusses the relationship of Polish SF to that by other writers with whom we are familiar. The second is a preview of some of the arguments

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he raises in a thousand-page study of science fiction and fantasy, to be published in Poland this year. Both make good reading. "S.F. Commentary" is priced at twenty cents a copy, $3.00 for eighteen issues. Those are Australian dollars, of course.

THE WATERS OF CENTAURUS
By Rosel George Brown • Doubleday & Co., Garden City, N.Y. • 1970 • 181 PP. • $4.95

Rosel George Brown died, much too soon, in 1967. Happily, she had finished this sequel to "Sibyl Sue Blue," her delightful novel of 1966. (It's in print again, from Berkley, as "Galactic Sibyl Sue Blue," for sixty cents. Read it first, if you haven't.)

The two books are the story of a policewoman of 1990, up to her ears in galactic intrigue. As the new book asks, only mildly rhetorically, "how did somebody who started out to be a Greek scholar end up half-blind in an itchy bathing suit on an unexplored island on the fourth planet of Alpha Centauri?" The first part of that somewhat involved process is covered by the first book, which ends with Sergeant Blue as guardian of a seemingly mature, but actually very young, human-Centaurian hybrid, who just happens to be heir to his human father's immense fortune, and who also has eleven identical "twin" brothers.

The new book opens with Sibyl and her teen-age daughter on the Centaurian island where Darld's people live. Immediately things start to go wrong, and Sergeant Blue is in the midst of them all. She is converted into a water breather. She is captured by the head of a force of revolutionists. She gets as much static from her human friends as from the natives and the meanies.

Sibyl's personality isn't as roundly painted as in the first book. For one thing, she's tied down more and tangles with fewer kinds of people and creatures. For another, Mrs. Brown might have done some polishing if she had lived. It's still a good yarn—and it could make a good movie of the kind "Barbarella" should have been.

OUT OF THEIR MINDS
By Clifford Simak • G. P. Putnam's Sons, New York • 1970 • 186 pp. • $4.95

Clifford Simak seems to be embarked on a campaign to break down the barriers between science fiction and fantasy. In his last two novels, "The Werewolf Principle" and "The Goblin Reservation," situations right out of the lamented *Unknown Worlds* were duly rationalized, and here we go again—this time with some variations of the concept argued by various philosophers, that the world is "really" what you—or someone else—think it is.

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Horton Smith, a writer seeking a quiet rural backwater where he can catch his breath, gets a note from a mysteriously dead friend: "I believe that man, with his imagination, with his love of story-telling, with his fear of time and space, of death and dark . . . has created another world of creatures which share the earth with him. Some day they may come out of their concealment."

And so they do—and they are out to get anyone who knows about them, Horton Smith first of all.

He is almost run down by a dinosaur. He spends the night with Snuffy Smith and Loweezie—Barney Google was away at the time. He is framed for murdering a nonexistent hillbilly lout. He is hunted by werewolves. He encounters Don Quixote. He gets some help from the Devil. And he is dogged across the country by a nastly little gnome called the Referee, who among other things gets him shot at the Battle of Gettysburg. (The Gettysburg episode is the best in the book.)

Unless you have strict ideas about what science fiction is, you may enjoy it.

EMPHYRIO

By Jack Vance • Doubleday & Co., Garden City, N.Y. • 1969 • 261 pp. • $4.95

I set this aside for quite a while because I thought it was a fantasy along the lines of Vance's "Dying Earth" series. It has much the same mood, but not the overlapping into sorcery and the supernatural. Let's say that Halma, the planet where young Ghyl Tarvok becomes the legendary hero Emphyrio, is halfway across the universe and halfway to the time when Earth dies.

Ghyl grows up in the crumbling city where rarely seen lordlings administer a niggardly welfare society amid shadows and myths of a great past. He is a misfit who persists in his errors and pays for his sins. He dallies with an underground that is a pastel-tinted memory of our young rebels, and finally breaks out with a violence and directness that is alien to most of them, hijacking a space yacht and flying it to other worlds, among them legendary Earth. And he discovers that the world is not quite what it has always seemed—but that change is easier to imagine than to realize.

Nobody, except perhaps Avram Davidson, paints the kind of pictures or worlds and societies that Jack Vance does. There will probably be a paperback edition of "Emphyrio" by the time you read this. Try it.

BURY HIM DARKLY

By John Blackburn • G. P. Putnam's Sons, New York • 1970 • 191 pp. • $4.50

John Blackburn is an English writer who made his debut a number of years ago with an excellent SF book called "A Scent of New-

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Mown Hay." He has apparently done a number of other books that I haven't seen, but would like to. (I am hunting for a 1969 book, "Children of the Night," that sounds like SF. If it turns up as a paperback, I'll report on it, as I am doing with other books I missed first time 'round.)

This time we have an excellent example of one of the minor, but venerable sf sub-genres—science fiction crossed with the Gothic horror tale. The book reminds me of an oldie that I recall fondly from the days of my youth, J. D. Kerruish's "The Undying Monster," which is back in a paperback edition—but that is out-and-out supernatural stuff. This starts with the familiar trappings—the nasty ancestor, the family curse, the sealed vault, the mysterious deaths—but it takes a decidedly untraditional twist. The vessel that may be the one King Arthur's knights believed to be the Holy Grail is something very different, and what it brings to mankind is a curse and not a blessing.

I have a weakness for these stories of ancient curses and antiquarian probings, when they are well done. This is.

AFTER THINGS FELL APART
By Ron Goulart • Ace Books, New York • Ace Special No. 00950 • 189 pp. • 75¢

You'd never know it from the blurb, but this is a private-eye story that would make a lovely vehicle for James Coburn in his original "Flint" mood. Its time is the near future, after the United States has fragmented into a mosaic of city states and communes, following an abortive Chinese invasion of California. I suspect that if you know California and its local peculiarities, you'll get a lot more fun out of the bawdy, zany goings-on than I do . . . and I had fun.

Jim Haley is an operative for PI—Private Inquiries—called in by the San Francisco police to find out who is behind the Lady Day movement. Teams of four girls are popping up all over California, assassinating public figures. "Lady Day" may be a person or a deadline. And in the fragmented society of the time, only a nongovernmental, civilian agency like PI, which can operate across parochial boundaries, can get much done.

It's a chase that keeps Haley bounding around the countryside like a ball in a badly shaken pinball machine. He drops into the Nixon Institute, where aged rock stars retell their fantasies about the good old days of 1968. He risks his neck in the Amateur Mafia's wide open town of San Rafael. He gets help at the G-Man Motel, operated by an antiquated band that took off from Washington with the FBI files and computers when "things fell apart."

Broken-down, insubordinate computers, robots and androids are

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all over the place, even zanier than the people. The one let-down, as a matter of fact, is Lady Day herself. Too bad—but I hope we hear more about Haley and his randy colleague, La Penna.

THE YEAR OF THE QUIET SUN
By Wilson Tucker • Ace Science Fiction Special No. 94200 • 252 pp. • 75¢

It has been much too long since we've heard from "Bob" Tucker, and this Ace Special, his first science fiction in years—though he has done a few mysteries—will show you what you have been missing. It also shows that, good as Tucker was in the past—"The Long, Loud Silence," "Wild Talent," "The Lincoln Hunters"—he is even better now.

This is a story of time travel into our immediate future, when the racial strife of this and past "long hot summers" has exploded into civil war. Chicago becomes a walled city under siege; then Maoist blacks invite China to drop a hydrogen bomb on it—but before that has happened, other games people are playing have been played to the end.

This is what will happen in the future three agents are sent to explore. The President—the one we elect in 1976—wants to know what is going to happen, so he can shape his policies accordingly. They go first to 1980, to check the election returns . . . then on to 1999, and the national tragedy that has butchered our society.

It's grim, but it's real—too real—and there are no concessions to formula.

OLD AND NEW SIMAK

COSMIC ENGINEERS
By Clifford D. Simak • Paperback Library, N.Y. • No. 63-133 • 159 pp. • 60¢

The cover is new but the interior blurb isn't. "First time in paperback" may have been true in 1964, but this is the third reissue. The original was here in 1939, before Simak developed his special approach to science fiction.

STRANGERS IN THE UNIVERSE
By Clifford D. Simak • Berkley Books, N.Y. • No. X-1589 • 191 pp. • 60¢

Seven striking short stories from the 1950s.

THE WEREWOLF PRINCIPLE
By Clifford D. Simak • Berkley Books, N.Y. • No. S-1463 • 216 pp. • 75¢

His next-to-last novel: the man, strayed among the stars, who returns to Earth with two strange beings merged in himself.

TIME AND AGAIN
By Clifford D. Simak • Ace Books, N.Y. • No. 81000 • 256 pp. • 75¢

The man who finds a book he hasn't written yet. Powerful forces want to make sure he doesn't write it—ever.

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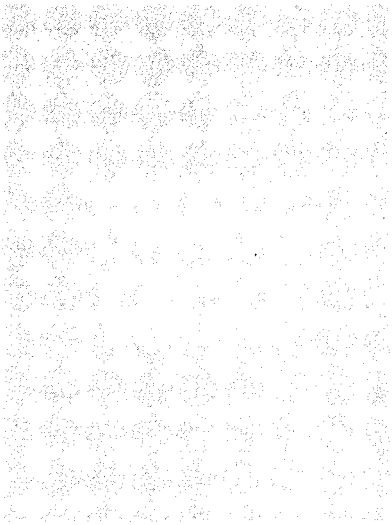

Dear Mr. Campbell:

Some people seem to assume "The Biggest Oil Disaster" is a description of the 1969 blowout in the Santa Barbara Channel. They should consider this: The Channel accident was in water less than 200 feet deep, and drilling was from a platform. But the gusher in the February, 1970 Analog story was in 2,000 feet of water, where there are as yet no producing wells, and drilling is from a ship, down through an *unmanned satellite* on the bottom.

The geology under the Channel blowout is an anticline, an inverted bowl, and lacks substantial caprock so that the oil is continuing to seep up through unconsolidated material. By contrast, in the Analog story, a fault-trap formation holds the oil pool. Layers of caprock slope up into a Federal Sanctuary where the gusher emerges in spite of another law.

The Channel blowout has been rated as medium-sized or small. But the one in the story is as big as some historical gushers on land. It would cover the California coastline all the way to Mexico.

The platform where the Channel blowout took place is near enough to shore storage tanks. But the underwater production satellite in the story is many miles from shore, and a pipeline is uneconomic. The concept of a nuclear explosion to excavate an offshore storage cavity received serious study in 1968. But it was intended for undersea oil storage, not for shutting off gushers. And yet—as the world's consumption of oil increases, so will offshore drilling and disasters. I wonder if oil is the heroin of our high-speed civilization? Are we hooked? Can we go out to the garage and kick that 200 horse-power habit?

HAYDEN HOWARD

755 North La Cumbre Road
Santa Barbara, California

We're hooked all right—and the withdrawal symptoms are apt to be violent!

Dear Mr. Campbell:

The problem of radiation and the public's reaction to it is an interesting one. It would seem, however, that the problems the AEC is

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now experiencing in trying to promulgate safe and effective criteria for radiation control are, to a great extent, of its own making. In the late 1940s and early '50s, much nuclear testing went on with no thought whatsoever given to the consequences that might occur genetically. The quantity of bombs, that it was thought could be tested quite safely in the atmosphere, was literally in the tens of thousands. You might be interested in reading certain segments of "The Atomic Shield,"—Volume 2 of the official history of the AEC—which contains some interesting information in this respect.

As a consequence, the public came to rather strongly doubt AEC pronouncements concerning the safety and effectiveness of radiation controls. Today, when the AEC is somewhat more aware of the possible long range effect of radiation exposure, it has vast difficulty in convincing people—even a great many scientists—that it is taking all possible precautions.

What people fail to take into account, however, is that today their exposure to radiation is much more likely to be a function of where they live rather than their close proximity to a nuclear reactor. A very good example is my home town of Los Alamos, New Mexico. The Los Alamos Scientific Laboratory, which is just across a canyon from the townsite, has a number of small research reactors and, in addition, there is a large facility which does all sorts of work with plutonium—which is not only radioactive but also damned toxic. A great many of the laboratory employees go about with film badges and various other types of radiation detectors which are monitored very closely. Yet, on the average, the people that work here receive a much greater amount of radiation from a source that they never think about. You see, Los Alamos is at as altitude of 7,300 feet and we get more than our share of cosmic rays. These produce more radiation that can disturb the inhabitants than the laboratory itself; and the lab is a nuclear weapons laboratory!

You are absolutely right about the Colorado Plateau not being the best place in which to live when it comes to radiation. Take the town of Grand Junction, Colorado. There, they managed to compound the problem. It seems that several housing subdivisions were built on the tailings left from a uranium mill. Result: the Public Health Service recently forced the evacuation of a number of homes by their pronouncement that these homes had higher than a permissible level of radon in them. As you undoubtedly know, radon is a radioactive gas and is a decay product of radium.

But we don't have to limit ourselves to areas where uranium ores exist in commercial quantities. As

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you point out, granite itself is a source of radiation since it contains minute but very real quantities of uranium. And there is *such* a lot of granite!

Finally, insofar as fossil fuels are concerned, there is yet another source of radiation that could become a problem. That is carbon 14. Carbon 14 has a half-life of 5,700 years and hence should not exist to any great extent in coal and oil. But, even if it is present to only the smallest extent, the tremendous amount of fossil fuels now being expended require that this small amount be released to the biosphere.

Nuclear power plants, whether we like it or not, will always represent a radiation hazard. We must always weigh whether the hazards are overcome by the benefits. The formulas used to weigh the hazards in the balance are subject to change as new information is provided. This is particularly true as we learn more about the manner in which radiation can be concentrated in the biosphere through the action of various life cycles. Thus, it may not be enough to say that radiation release from a particular power plant meets the general radiation protection criteria. Rather it may be necessary to say that the radiation release must meet standards relevant to that particular area.

I believe it is an oversimplification to say that one power source uncovers radiation and another buries it. The problem is larger than that. We must decide what level of radiation we are prepared to live with and then use the power source that keeps us within that level. Unfortunately, we really don't know much more about radiation today than the biologists knew about the effects of DDT when it was proclaimed the panacea against all forms of insect infestation.

Ed Walterscheid

And the lack of knowledge works two ways! At first, it was thought gene damage was irreversible—certain to be passed on. Now we know DNA is self-repairing to a large—but unknown!—extent, so gene damage is less dangerous than at first it was thought to be.

Dear Sir:

Robert Chilson's story, "The Wild Blue Yonder," ends with "I've often wondered why none of them thought to ask what became of all the coal in the mine." This is puzzling. What did Ted Halsman do with it? Were his advanced theories and gadgets really fake, intended to goad scientists into further examination of their theories, and Halsman converted all the coal into explosives? One product of coal is TNT. Did he use the coal to make the improbable 3,000 tons of TNT? Or, did he really invent more than the PM motor and uni pulse radar system and actually had what the public thought he had? If

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that is so, then what *did* happen to all that coal?

I would appreciate it if you or the author could take the time to answer this.

While I am writing, I would like to compliment you on your excellent editorials. Although I have only recently started to read SF magazines on a regular basis—having been a SF reader for many years—I feel that Analog is the best, and one reason is your editorials. They are always informative and thought-provoking. So far, I've agreed with each of them.

JOHN TIEDEMAN

212 Chestnut Avenue
East Meadow, New York

Tsk! Tsk! 3000 tons of coal converted to coal dust and aerated by powerful blowers can produce a bee-yutiful three kiloton explosion, my friend!

Dear John:

I would like to comment on the two letters by William Powers and John Rounds in your March, 1970 issue. I agree with your comments, but the following might be added:

First, however, let us dispose of Powers' typical blast at the motives of those who have proposed scientific research into "race and intelligence." This kind of argument ad hominem is invalid as every freshman logic student is taught; but, in this case, Powers has not been factual. It might comfort him to believe that the "prime movers behind efforts to get scientific respectability behind studies of racial intelligence are gentlemen from the South" who "wish to show that there is a difference so that they can defend the feeling they already have about intermarriage," but it just ain't so. I'm not sure it would be relevant if it were so, since large numbers of scientists devoted their lives to studies proving assumptions they already had (read a life of Newton, for example); it's the study and its design that are important, and if they are going to "get scientific respectability behind" their efforts, they will have to put up with experiments designed, conducted, and reported by men who do not share their prejudices.

However, the prime movers behind current efforts to interest scientists in research on race and intelligence are Dr. William Shockley of Stanford and Dr. Arthur Jensen of Indiana. Both are highly respected men in their fields. Dr. Shockley teaches philosophy of science and holds the Nobel prize for inventing the transistor. I am not acquainted with Dr. Jensen but I would be very much surprised if he were a gentleman from the South, and I know that Dr. Shockley is not.

Now, Powers and Rounds say that we cannot define race; we cannot recognize members of different racial groups, and, therefore, we must not engage in such research.

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This is hardly a valid objection to the kind of research presently being urged. Huxley once observed that, although at the microscopic level we are sometimes unable to classify certain small creatures as plants or animals, no young swain ever sent his love a bunch of hippopotomi in the mistaken belief that they were violets. Similarly, the courts of the land in ordering racial balance in the schools do not seem to have any difficulty in recognizing a segregated school.

The proponents of research into race and intelligence assert that they have evidence indicating (PLEASE NOTE. PLEASE: I have NOT said they have proof or that they say they have proof) that Negro children in the US do not seem to do well in tests of ability to form abstract generalizations; that these results seem to be consistent in all age groups; and that, in their judgment, environmental and cultural factors are insufficient to account for this, but that more research is required.

They have not asserted that Negroes are more stupid than Whites. They have not asserted that Whites are more intelligent than Negroes.

Furthermore, the results have been obtained and reported by careful behavioral scientists fully aware of the numerous problems of testing minority cultures. I could raise a few such problems myself, having been trained as a professional psychologist. These factors have been considered, and, in the judgment of competent scientists, are not sufficient to explain the evidence obtained; at least the results in hand indicate that more research is needed.

Furthermore, Shockley, Jensen, and presumably all sane people are aware that some Negroes are capable of a high order of abstract generalization; that there are and have been geniuses of the Negro race; that many Whites are not capable of abstract reasoning; that there are and have been White morons, idiots, imbeciles, and dullards. They are aware that abstract generalization is not necessarily intelligence and that intelligence is difficult to define if for no other reason than people disagree as to what is intelligent behavior and disagree as to what kind of mental processes are desirable. Pointing out "facts" such as the above adds little to rational debate, but I feel required to do so to forestall the inevitable letters pointing them out to me.

I would also like potential letter writers to know that *I* am aware of these things. The brightest student I ever had in my college teaching career was as close to the pure "Negroid" type as it is possible to be in appearance, while probably the dullest boy I ever taught was a blonde, blue-eyed Nordic sports hero. So what?

The importance of the question has to do with schools, which by

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economic and cultural necessity must be geared for *averages*, not individuals. I hasten to add that I wish it were not so; it would be nice if all schools could have syllabi geared to each individual in the class; but, however desirable that would be, schools must teach subjects and the instruction must be geared to averages. (This is unfortunately true now even in the colleges, since we have over-filled them.)

For example: the usual form of reading instruction in this nation is called "implicit phonics." This requires that a child learn to generalize the rules of phonics without being taught them and without drills. He is supposed to figure them out with a minimum of help. This obviously requires a high order of abstract reasoning: precisely what the fragmentary evidence suggests is very difficult for Negro children. If this be true, we have condemned an entire generation of Negro children to unnecessary illiteracy because we would not do research on the problem.

And I have personal evidence that every human being, White, Negro, any race, of IQ 85, or above, can learn to read if properly instructed; yet our national tests show that over half the Negro children do not learn to read at all in our schools. Could it be the instruction is not geared to the children?

Shockley also points out that, if the evidence holds up, vast changes must be made in our welfare system, which is geared to egalitarian assumptions. With so many billions at stake, he says, it makes sense to examine the assumption. This seems a reasonable proposition.

(I have a confession to make: I don't for a moment believe that implicit phonics is a good system for teaching anyone to read, and my own conclusion is that we get differential results in Negro and White schools because more White children are taught to read by their parents and at home. But it is interesting that we get differential results in illiteracy by race, and my own conclusions are NOT incompatible with the Jensen hypothesis, although, of course, the Jensen hypothesis is by no means the only explanation of the school reading problem.)

J. E. Pournelle
12051 Laurel Terrace
Studio City, California

Speaking of abstract reasoning—for some reason, it seems enormously difficult for many people to understand two simple facts:

1. No statistical truth applies to any individual member of the group. Example: No man has 2.3 children.

2. No fact relevant to an individual member of a group can be cited to evaluate a statistical truth concerning the group. Example: I know a girl of Negro ancestry who is a blue-eyed blonde.

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THE DRUG SCENE

continued from page 7

Medicine in a wholehearted, all-out way. In the cities, nine and ten-year-olds are finding the euphoria of heroin a wise and wonderful thing in their judgment, and twelve-year-olds are soaring off on the ultra high that kills.

Now inasmuch as judgment is the last mental function that's evolved, it's the first one that goes when something interferes with the brain's operations–whether it's anoxia, fever, or toxic drugs. It's taken some 3.5 billion years to evolve a biochemical and neurological system that can think and judge—three and a half gigayears of field trials, testing every possible technique—to produce the system we have.

It is one of those wild propositions that a science-fiction author can have fun with, that dumping a bucket of seawater into an electronic computer should suddenly convert it to a conscious and rational entity. It's one of those wild, way-out improbability-possibility things we can base a story on. But I wouldn't believe it. I *would* believe that such a dunking could make it come up with some very original answers to problems, though—on the order of 7 x 8 = 81.

The probability that a drug that interferes with the metabolism of the brain should produce a "higher state of consciousness" and reveal new and wonderful truths, is, I think, about equal to that of the bucket of seawater producing a conscious computer.

The effect is, actually, basically equivalent to that of anoxia—by reducing the functioning of the brain, the self-critical function of judgment—the highest function—goes first, leaving a happy conviction of infallible and smoothly rapid clear thinking.

This produces a deep and happy conviction, based on this new-found clarity of thought, that taking the drug is a wonderful way to expand and increase the clarity of the mind. And so long as the individual doesn't try to demonstrate his new-found powers in any objective way—such as doing arithmetic, or building a device that functions, or designing a new and useful circuit—he remains unalterably convinced that his decision—reached during the brilliant clarity induced by the drug—is supremely wise.

There's nothing like the loss of the self-critical function to make you feel wise, strong, and competent. It's this effect that makes the drunken 5'2" clerk start a fight with the professional football lineman.

One of the involuted inconsistencies of human behavior is evident in the modern drug-culture of the sub-adults of today. (When

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children under ten years old are involved, one can't use the term "adolescents" or "teen-agers" to cover the group.) One of the ideas widely touted by the adolescent group in particular is that of Finding One's Individuality, or Doing My Thing. The tremendous importance of being your own, unique self—of living your own way.

But what they do, in fact, is struggle mightily to *belong*—to be "in"—to do whatever is the "in" thing. Logically, that is a complete denial of self and individuality. But it's also deeply human; the adolescent has a powerful and ancient instinct to transfer his loyalty, his sense of membership, of belonging, from the family—the orientation of the child—to the tribe, the peer-group.

The period of change-over from childhood security to adult self-sufficiency is inescapably a period of deep conflicts and uncertainties. The hard, pragmatic facts of the situation genuinely do present the individual with a tremendous series of decisions that he's forced to make willy-nilly.

Typically, the late-teen-ager is almost totally unable to deal with the pubescent of ten or so; the far-famed "generation gap" between teen-ager and parent is a lot less gaping than that between a sixteen-year-old and his ten-year-old brother.

But that same seemingly unbridgeable gap exists between the now-sixteener and his own self, his actual identity, as of ten. He can no longer understand himself-as-he-was—and with his certainties of the recent past crumbling from his comprehension . . . how can he build a new personality that he can trust as "himself"? Therein, I think, lies the great glory of drugs. They do louse up the self-critical judgment function, and permit the adolescent to achieve that wonderful sense of having a new, sure, and perfect answer, derived from the clear and brilliant thinking he achieves when his self-criticism is turned off.

The answers are, in fact, particularly lousy answers—but they feel sure, and firm and blessed relief from self-critical uncertainty lies in them.

Drugs, such as morphine, suppress the acute discomfort of uncertainty, and give the feeling that the problem of self-evaluation no longer exists. If you take enough morphine when you have acute appendicitis, it will give you the feeling that no real problem exists any longer, while the appendix ruptures and peritonitis sets in.

There's a lot of hurrah about drugs—particularly pot—being no worse, or even better than, alcohol. The medical scientists still haven't been able to identify just what it is pot does, or what component does it, or what side effects it has, and this is taken as proof that there are no side effects.

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The trouble with that is that it's one of the instances where Science and the Professional Scientific Attitude happen to be logical, but irrational.

Scientists have an exceedingly narrow-minded, bigoted approach to data; if it wasn't generated in an officially recognized *laboratory*, by a *scientist* conducting a consciously plotted *experiment*, it isn't data that any proper scientist will consider. However scanty the data, if it was generated in the approved way, under the approved conditions, it is considered Scientific Proof.

A perfect example of this attitude is the laboratory proof that acquired characteristics are not genetically heritable. A Scientist in a proper Laboratory conducted an Experiment; for ten generations he cut off the tails of white mice, and showed that after ten generations, the mice were still born with full-length tails.

This constituted Proof. Because no laboratory was involved, and no proper Scientists, and because it wasn't plotted out as an Experiment in the Genetics of Acquired Characteristics, scientists did not consider the fact that, after some three hundred generations of record, Jews still have the ritual of circumcision as being of any scientific value as evidence.

In the same narrow-minded way, Medical Science does not consider the millennia-long record of cultures that accept the widespread use of drugs as "evidence" of the statistical, long-range effect of such substances as the opiates, cocaine and the hashish-marijuana families.

The human culture that has achieved most during the last ten thousand years is the one culture that has a deep cultural taboo against hallucinatory drugs—the Western Culture.

Now because this wasn't done in a laboratory—who but God has had a laboratory and been able to observe for the last ten millennia?—this isn't acceptable scientific evidence. It wasn't properly planned beforehand, and rendered free of all other possible causative factors.

But only the culture that vetoed the use of hallucinogens progressed beyond the use of animal muscle power.

The term "hallucinogens" needs a little sharpening of definition. Practically *any* substance can cause an individual to start hallucinating—and that includes water and "inert" nitrogen gas. Get enough water into your system, and the blood serum ion concentration is diluted below the proper point. It's a lousy way to get "high," but you can do it. You start hallucinating any time the brain's metabolism is sufficiently loused up—and a huge excess of water will do it.

Nitrogen, of course, causes the "rapture of the deep" that hard-hat divers found out about—the hard

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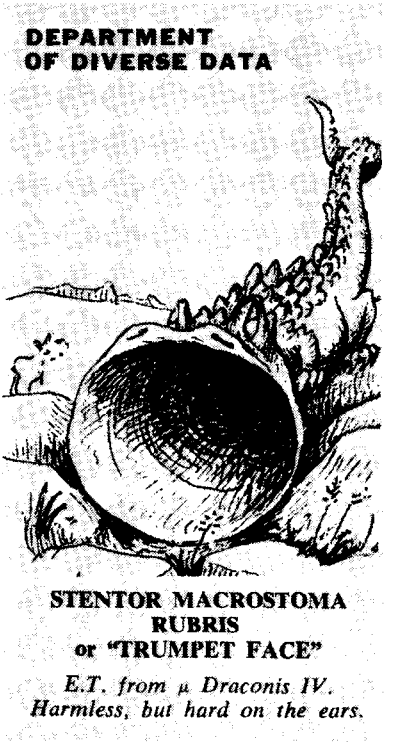
way!—many years ago. Nitrogen isn't all *that* inert, when you get it under high pressure dissolved in your blood.

By "hallucinogens" I mean substances which, in the quantities normally used, have the primary characteristic of producing delusional states. This rules out nitrogen and water; no normal use of the substances is hallucinogenic.

It also rules out alcohol; it's perfectly true that if you soak up enough of the stuff long enough you start having some Grade A #1 hallucinations—but as I say, that "enough of the stuff long enough" also applies to water and nitrogen. The *primary* effect of alcohol is *not* hallucinogenic—and it takes a really spectacular excess to produce an hallucinogenic effect.

(As a matter of fact, there is evidence now that prolonged excessive consumption of alcohol causes a failure of the enzyme that normally breaks the stuff down harmlessly, with the result that the alcohol metabolism products polymerize and rearrange to produce morphine and normorphine in the brain. Perhaps alcohol isn't the actual hallucinogen after all!) It *is* a mood-changing drug; a little alcohol can produce a relaxation of tensions, and make social communication easier and smoother. But excessive use of the stuff does not produce a greater social relaxation—and it normally severely reprimands the individual who overindulges.

The advocates of pot say it does everything alcohol does, without giving you a hangover.



Hashish and various similar drugs have been used by peoples in the Middle and Far East for millennia. In areas which are now called "developing" or "emerging" or "backward" nations, depending on how euphemistic you feel. Alcohol has been used in moderation by most people of the "industrialized" or "high technology" nations.

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This does not, of course, constitute a proper Scientific Experimental Proof—but it does seem to me that those drugs have sociological side effects that are anything but desirable.

However, that evidence-from-history applies only to the old, natural drugs such as opium, cocaine, hashish and pot; the modern synthetic and semi-synthetics such as morphine, heroin LSD amphetamines and barbiturates weren't available until the non-drug-using "establishment" developed the high-order organic chemical technology that made them possible. What the modern sub-adult drug-culture is consuming now is a mixture of substances with several orders of magnitude greater intensity of effect.

I suspect that the lessons of history don't apply—that, instead, the consequences of "Freedom of Medicine" will apply. The sub-adults are deciding that their judgment is far wiser than that of stupid elders—and the clear, satisfying and sure thinking they achieve under drugs assures them they are right.

The large number of sub-adults who are killing themselves off with assorted high-potency drugs each week in our major cities is, indeed, eliminating the less competent minds from the race. Pot isn't very lethal itself—but the number of heroin, barbiturate and amphetamine deaths is, indeed, lessening the population explosion, and by culling the less judicious, raising the average competence of the human race.

If the damn fool kids want to kill themselves—why obviously the race is better off without them, so why interfere?

If they choose to embark on a clearly self-destructive course—why, that's "doing their thing," just as they demand, isn't it?

A hundred thousand years ago if a kid didn't accept the commands of his parents to stay out of the woods—stay near the tribal camp site—this strain of arrogant rebellion was culled from the tribe quite effectively. There were plenty of predators looking for meat.

Today, the same sort of rebellious arrogance doesn't encounter quite the same form of "You should drop dead!" on your feet.

Now it comes in powder form—but it's just as effective in culling out the ones the race is better off without. The ones who cannot accept that they must be able to doubt themselves and their own judgment before they can be true adults or truly judicious.

See—the Freedom of Medicine can be genuinely advantageous to the race, can't it!

The next time you meet someone who's convinced that the use of drugs is really a good idea—try agreeing with him on the above basis.

He may not be too glad you agree with him. ■ The Editor.

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